**University of Alberta**

# The Effect of Visual Appeal on the Perception of the Credibility of a Web Site For a Student-Run Consulting Business

by

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## Abstract

This thesis examines the effect of visual appeal on the perception of the credibility of a Web site for a student-run consulting business, and demonstrates how designers can incorporate visual rhetoric in creating effective and credible Web sites. The exploratory study involved the design of three alternate Web interfaces for a student run-business. By manipulating visual design elements such as color, imagery and layout, each of the three Web sites was provided with a distinctive look-and-feel, each based on one of the rhetorical modes of appeal (rational, ethical, emotional). Moreover, an extensive Web survey was conducted to gather people's opinions and preferences with respect to the three Web sites. The results of this study suggest that visual design of Web sites matters and that visual appeal affected the participants' perception of the credibility of the sites. However, the study did not attempt to determine fully what constitutes 'credible enough' for any of the Web sites, because such perceptions are based on a personal taste and preference.

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## Table of Contents

**Chapter 1. Introduction** ..... **1**

1.1. Statement of the Problem ..... 1

1.2. Purpose of the Study ..... 2

1.3. Research Questions ..... 5

1.4. Organization of the Thesis ..... 5

**Chapter 2. Literature Review** ..... **6**

2.1. The World Wide Web ..... 6

2.1.1. History of the World Wide Web ..... 7

2.1.2. Information on the World Wide Web ..... 8

2.2. Credibility ..... 9

2.2.1. Web Credibility ..... 10

2.2.1.1. The Prominence-Interpretation Theory ..... 13

2.2.1.2. Stanford Credibility Study ..... 15

2.3. Visual Perception ..... 18

2.3.1. Gestalt Theory ..... 18

2.2.2. Color ..... 19

2.2.3. Imagery ..... 21

2.3.4. Layout ..... 23

2.4. Web Design Criteria ..... 25

2.5. Business Web Sites ..... 27

2.6. The Concept of Rhetoric ..... 29

2.6.1. Rhetorical Modes of Appeal ..... 31

2.6.1.1. The Logical Appeal – Logos ..... 33

2.6.1.2. The Emotional Appeal – Pathos ..... 34

2.6.1.3. The Ethical Appeal – Ethos ..... 35

**Chapter 3. Methodology ..... 37**

3.1. Research Methods ..... 37

3.2. Electronic Surveys ..... 38

3.3. Research Process ..... 40

3.3.1. Development of the Web Sites ..... 41

3.3.1.1. Web Site A ..... 43

3.3.1.2. Web Site B ..... 46

3.3.1.3. Web Site C ..... 48

3.3.2. Development of the Survey ..... 51

3.3.3. Iterative Process ..... 55

3.3.4. Participants ..... 58

3.3.5. Ethical Considerations ..... 59

**Chapter 4. Results ..... 61**

4.1. Participant Sample ..... 61

4.2. Web Site Evaluation Results ..... 62

4.2.1. Web Site A – Emotional Appeal ..... 62

4.2.2. Web Site B – Ethical Appeal ..... 66

4.2.3. Web Site C – Logical Appeal ..... 69

4.3. Web Site Design and Credibility Results ..... 72

4.3.1. Color ..... 74

4.3.2. Imagery ..... 75

4.3.3. Layout ..... 76

**Chapter 5. Discussion and Conclusions** ..... **79**

5.1. Discussion ..... 80

5.2. Limitations of the Study ..... 85

5.3. Suggestions for Further Research ..... 87

**References** ..... 91

**Appendix A:** Recommendations for an Effective Use of Color ..... 102

**Appendix B:** Recommendations for an Effective Use of Imagery ..... 104

**Appendix C:** Recommendations for an Effective Use of Layout ..... 105

**Appendix D:** General Recommendations for an Effective Web Design ..... 106

**Appendix E:** Web Site A (Emotional) Screenshots ..... 112

**Appendix F:** Web Site B (Ethical) Screenshots ..... 115

**Appendix G:** Web Site C (Logical) Screenshots ..... 118

**Appendix H:** Survey Web Site Screenshots ..... 119

**Appendix I:** Web Survey Questions ..... 121

**Appendix J:** Ethics Proposal ..... 126

## List of Tables

**Table 2.1:** Types of Credibility ..... 12

**Table 2.2:** Factors Affecting Prominence and Interpretation ..... 14

**Table 2.3:** Stanford Credibility Study Results ..... 17

**Table 2.4:** Gestalt Principles ..... 19

**Table 2.5:** Characteristics of Rhetorical Modes of Appeal ..... 32

**Table 3.1:** Web Site Characteristics Determined by Rhetorical Modes of Appeal ..... 42

**Table 3.2:** Survey – Physical and Technical Considerations ..... 51

**Table 4.1:** Selected Results - User Profile Survey ..... 62

**Table 4.2:** Results – Web Site A – Suggested Changes to the Overall Look-and-Feel ... 63

**Table 4.3:** Results – Web Site A – Effectiveness of the Overall Visual Content ..... 64

**Table 4.4:** Results – Web Site A – Appearance of Credibility ..... 65

**Table 4.5:** Results – Web Site B – Suggested Changes to the Overall Look-and-Feel ... 66

**Table 4.6:** Results – Web Site B – Effectiveness of the Overall Visual Content ..... 67

**Table 4.7:** Results – Web Site B – Appearance of Credibility ..... 68

**Table 4.8:** Results – Web Site C – Effectiveness of the Overall Visual Content ..... 70

**Table 4.9:** Results – Web Site C – Appearance of Credibility ..... 71

**Table 4.10:** Results – Web Site Elements Affecting Users' Trust ..... 73

**Table 4.11:** Results – The Effect of the Look-and-Feel of a Web Site on Its Credibility 74

**Table 4.12:** Results – The Effect of the Use of Color on a Web Site on Its Credibility .. 75

**Table 4.13:** Results – The Effect of the Use of Images on a Web Site on Its Credibility 76

**Table 4.14:** Results – The Effect of the Overall Layout of a Web Site on Its Credibility 77

## List of Figures

**Figure 1.1:** Research Model ..... 4

**Figure 3.1:** Humanitech Web Site Flowchart ..... 43

**Figure 3.2:** Raw Media – Home Page ..... 44

**Figure 3.3:** College Pro Painting – Home Page ..... 44

**Figure 3.4:** Web Services Group – Home Page ..... 45

**Figure 3.5:** Web Site A – Home Page ..... 45

**Figure 3.6:** IBM – Home Page ..... 46

**Figure 3.7:** Student Legal Services – Home Page ..... 47

**Figure 3.8:** MCP Media – Home Page ..... 47

**Figure 3.9:** Web Site B – Home Page ..... 48

**Figure 3.10:** UseIt.com – Home Page ..... 49

**Figure 3.11:** Creative Juices – Home Page ..... 49

**Figure 3.12:** Hinton Web Design – Home Page ..... 50

**Figure 3.13:** Web Site C – Home Page ..... 50

**Figure 3.14:** Survey Web Site Flowchart ..... 54

**Figure 3.15:** Iterative Process for Designing Survey Questions ..... 55

**Figure 4.1:** Importance rating of selected elements on a Web site (question 4.7) ..... 78

**Figure E.1:** Web Site A – Home Page ..... 112

**Figure E.2:** Web Site A – About Us Page ..... 112

**Figure E.3:** Web Site A – Services Page ..... 113

**Figure E.4:** Web Site A – Projects Page ..... 113

**Figure E.5:** Web Site A – Contact Page ..... 114

**Figure F.1:** Web Site B – Home Page ..... 115

**Figure F.2:** Web Site B – About Us Page ..... 116

**Figure F.3:** Web Site B – Services Page ..... 116

**Figure F.4:** Web Site B – Projects Page ..... 117

**Figure F.5:** Web Site B – Contact Page ..... 117

**Figure G.1:** Web Site C – Home Page ..... 118

**Figure H.1:** Web Survey – Home Page ..... 119

**Figure H.2:** Web Survey – Sample Question Page ..... 119

**Figure H.3:** Web Survey – Sample Question Page ..... 120

**Figure H.4:** Web Survey – Sample Question Page ..... 120

# Chapter 1. Introduction

In this chapter, I present an introduction of the study on the effect of visual appeal[1] on the perception[2] of credibility of a Web site run by a student consulting business. I start with a brief statement of the problem. Next, I present the purpose of the study and the research questions. Finally, I conclude the chapter with a short overview of the following chapters.

## 1.1. Statement of the Problem

The Web site of a business is an important means of interacting and communicating with customers (Fleming, 1998). Promoting a credible impression on the Web helps in building the overall credibility of any business, because people tend to make quick decisions about the choice of businesses based on their Web presence (Lif, 1998). It is not only the information and textual content presented on a Web site that matter. The way a Web site is displayed graphically is also important, because it represents the organizational image of a business and promotes its services online. A Web site should positively and accurately represent a business, organization or an individual (Damron & Gillette, 2002) in order to increase their credibility. B.J. Fogg and Shawn Tseng (1999) defined credibility as believability and confirmed that it is critical to establishing trustworthy impressions. It is especially important for student-run businesses, because they find themselves in a competition with known and established

---

[1] In this thesis, I use the term 'visual appeal' to refer to how attractive a Web site looks; visually appealing refers to visual attractiveness as opposed to visual repulsiveness.

[2] The Oxford English Dictionary defines perception as the process by which a person selects, organizes, and interprets information (OED Online Oxford University Press. 14 March, 2005. http://oed.com). In other words, perception can be defined as the feelings and attitudes people have toward different places, peoples, and environment.

businesses (Cheskin, 2000), and they must put an extra effort into persuading[3] prospective customers. Often, the overall visual appeal of a Web site alone is considered a key factor in determining what customers might think about a business (Fogg, 2002; Perfetti, 2003). Therefore, the credibility of Web sites should be particularly critical for student-run businesses that offer Web design and multimedia development services, since the site itself also serves as an example of the goods being sold.

Research on the credibility of Web sites is still in its infancy. Until the late 1990s, there was no large-scale research related to assessing the credibility of Web sites (Fogg et. al., 2003). Beginning in 1999, B.J. Fogg and the Stanford Persuasive Technology Lab initiated a number of large-scale tests on the credibility of Web sites, in which hundreds of Web sites were studied, including entertainment, shopping, information and corporate Web sites. The results of Fogg's research suggested that the visual design[4] of Web sites is clearly the most prominent feature affecting people's perception of the credibility of Web sites.

### 1.2. Purpose of the Study

The purpose of this study was to explore how visual appeal alone affects the perception of the credibility of a Web site for a student-run consulting business, such as

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[3] Persuading means presenting of winning arguments to people in order to induce them to do or believe something (OED Online Oxford University Press. 14 March, 2005. http://oed.com).

[4] There are many definitions of visual design. Commonly, it is described as the combination and application of various aesthetic principles to the presentation of information such that the information has embedded qualities of elegance, harmony, unity, and balance (Schwier & Misanchuk, 1993). In computer interfaces, it is a variable that incorporates components such as the use of color, graphics and animations, layout and location of information, text density, screen density, and legibility, (Bates, Holton, & Seyler, 1996). Visual design has two objectives: to attract attention to the content and to present content so that it is easily understood (Costello, Curtis, Joyce & Singer, 1995).

Humanitech[5], and to contribute to the understanding of the elements that influence this perception. The study also provided a practical apprach for Web designers, and a new method of studying the effectiveness[6] of Web site design.

One way of looking at visual appeal is through rhetoric (Ehses & Lupton, 1988). Rhetoric is the art or study of using language (including visual language) to please or persuade. Aristotle (1355b) described it as the means of persuasion, and since Web sites often serve as the means of persuading customers to contact a business or to buy a service and/or a product, rhetoric can be integrated in studying the effectiveness and the credibility of Web sites.

There are three rhetorical modes of appeal (rational, ethical and emotional), adapted from classical rhetoric, that have been used in the field of visual communication, primarily in print (Ehses & Lupton, 1988). These modes of appeal guided my design choices (and also the participants' evaluation of the three Web sites developed for this study) in exploring the effect of visual appeal on the perception of the credibility of three alternate Web interfaces based on a Web site run by Humanitech. I emerged with a set of visual guidelines, with respect to color, imagery and layout[7] that influenced the visual design of each of the three Web sites. I collected research data through a Web-based

---

[5] Humanitech is a student-run, non profit consulting group based out of the Master of Arts in Humanities Computing program, at the University of Alberta. It is managed and operated by graduate students, and provides such services as multimedia development, project management, electronic publishing and technical translation.

[6] Clement Mok, in an interview with Richard Anderson, pointed out that criteria for effective Web site design have not really been determined yet (Anderson, 2000). For that reason, it is difficult to provide a definition of 'effective Web design'. It is important to mention that a lot of the rules in Web design are not based on academic research, but on a pure individual preference.

[7] In this study, imagery consists of any images (photographs and/or illustrations), while layout is the visual arrangement of elements on a page, including the unused portions of the page.

survey. A comprehensive model illustrating the research framework of this study is displayed in Figure 1.1.

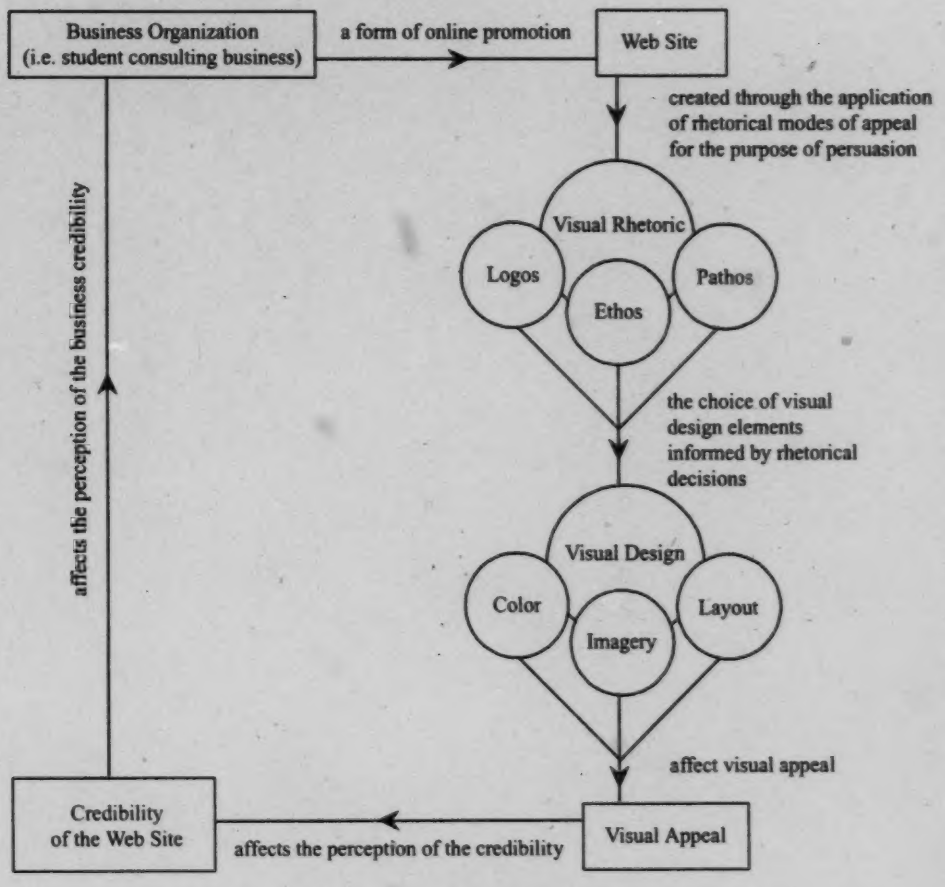


**Figure 1.1 Research Model**

### 1.3. Research Questions

The following three research questions were the focus of this study:

- Is there sufficient agreement in the literature on the properties of credible Web sites in order to generate a common set of terms?
- How does visual appeal affect the perception of the credibility of a Web site run by a student consulting business?
- How can rhetorical modes of appeal assist designers in creating effective and credible Web sites?

### 1.4. Organization of the Thesis

The remainder of the thesis is organized as follows. In Chapter Two, I review related literature to identify theoretical foundations for this study. This chapter provides a brief introduction to the World Wide Web[8], and presents background research in such areas as credibility (including Web credibility), visual communication, and rhetoric. In Chapter Three, I discuss the method used in this study. The chapter starts with a review of available research methodologies and provides background information on electronic surveys. Next, I discuss the details of the research tools used in this study, procedures undertaken and participants. In Chapter Four, I present and discuss the results of the survey. Finally, in Chapter Five, I draw conclusions based on the findings of the study, present its limitations, and suggest areas for further research.

[8] The World Wide Web or simply the Web is one of the services offered by the Internet; these terms are commonly used interchangeably.

# Chapter 2. Literature Review

In this chapter, I present the literature review that forms the theoretical basis for the research problem. I start with a brief introduction of the World Wide Web. Next, I discuss the subject of credibility, including credibility on the Web. The overviews of visual perception, visual design elements, and Web design criteria follow. In addition, I discuss the problem of business Web sites. I conclude the chapter with a review of the concept of rhetoric and a presentation of rhetorical modes of appeal.

## 2.1. The World Wide Web

The World Wide Web is a massive repository of information that connects people, providing them with access to millions of Web resources via the Internet. It enables everyone with access to it to publish and to get all the information they need in order to make decisions and to influence the decisions of others (Murphy, 2000). It exists both as an information and commercial medium. As it is technically easy and relatively inexpensive to build a Web page, the number of commercial, educational, political, or religious groups with an online presence has exploded (Enos & Borrowman, 2001). And, the number of Web sites grows daily (Internet Software Consortium, 2001). How, among this large quantity of online information, do we know what to believe? How can we determine what resources are authoritative and trustworthy? A brief discussion of the history of the World Wide Web is useful in order to explore these types of questions, and also to provide some insight into why this study was considered.

### 2.1.1. History of the World Wide Web

The World Wide Web is a term that Tim Berners-Lee and Robert Cailliau originally used in November 1990 to describe a hypertext information distribution system designed and created for CERN, a particle physics laboratory in Geneva, Switzerland (W3C, 1998, para.1). Up until that time, computers utilizing different platforms or tools were unable to access existing information through a common interface. The World Wide Web was designed mainly to overcome these incompatibilities of retrieving information.

In 1993 Marc Andreesen and his colleagues developed the first graphic interface browser called Mosaic (W3C, 2000a, para.1). Popularity of the graphical user interface (GUI) browser was immediate. People without computer expertise were able to use the graphical interface and simply point and click to navigate the World Wide Web. Soon Netscape's Navigator and Microsoft's Internet Explorer appeared. This marked the beginning of the true Web revolution.

In October 1994, the International World-Wide Web Consortium (W3C) was founded "to lead the World Wide Web to its full potential by developing common protocols that promote its evolution and ensure its interoperability" (W3C, 2000b, para.1). The W3C consists of a number of companies interested in the promotion of an interactive Web, and is considered a governing body for the Web.

The number of Web users around the world is constantly growing. The approximated global number of Web users at the end of the year 2002 was 655 million. By the year 2004, it was estimated that 945 million people around the world will use the Web for various purposes, including business, educational, and home use (Cyberatlas, 2003).

### 2.1.2. Information on the World Wide Web

Through the use of the World Wide Web anybody can become an 'author' or a 'service provider', including those who wish to remain anonymous and those who wish to take advantage of others. Information on certain Web sites may be from reliable sources, but users have no assurance that this is so because of the nature of the Web, and the way the information is presented on the Web (Alexander & Tate, 1999). Because the Web manifests itself in media format and because all media formats build a structure that people come to accept as a legitimate source of knowledge, it has been observed that generally people believe the information found on the Web (Blasi & Heinecke, 2000). On the other hand, based on data from a survey conducted in 2001 by the University of California, Los Angeles, less than 40% of online users found half of the information present on the Web trustworthy (IT Matters, 2001). The reason remains unstated.

Elizabeth E. Kirk (1996) said that if Web site viewers think information and services cannot be trusted, they will abandon the site. Fogg (2002) supported Kirk's view with findings from Consumer Web Watch (Consumer Web Watch, 2002) about low-quality information and online fraud; he claimed that creating usable Web sites is no longer sufficient. In general, there is an agreement in available literature that credibility is, indeed, a major issue online (Borkowski, 1998; Karvonen & Parkkinen, 2001; McKeon, 1998).

## 2.2. Credibility

Credibility[9] is often defined as believability (Fogg & Tseng, 1999). The word 'credible' comes from the Latin 'credere', which means 'to believe' (Fogg, 2003). Some languages even use the same word for the two English terms. For instance, the Spanish word 'creible' means both 'believable' and 'credible' (Fogg, 2003). Academic literature on credibility dates back to the 1950s, and evolves mainly from the fields of psychology and communication (Fogg & Tseng, 1999). Scott M. Cutlip, Allen H. Center and Glen M. Broom suggested that "the credibility of the communicator is determined by a person's intentions, trustworthiness, and expertness, as these qualities are perceived by the target audience" (1985, p. 54).

Other authors have also agreed that credibility is a perceived quality (Fogg, 2003; Fogg & Tseng, 1999; Hovland, Janis & Kelley, 1953). It consists of two components, trustworthiness and expertise[10] (Fogg, 2003; Self, 1996). Trustworthiness is defined as "well-intentioned, truthful, and unbiased" and "it captures the perceived goodness of the sources" (Fogg & Tseng, 1999. p. 40). Expertise describes experience and competency, and captures the perceived knowledge and intelligence of the source (Fogg & Tseng, 1999).

Credibility is the product of many factors, including each person's experience and overall view of the world and the level of trust of people in general. These overall

---

[9] Fogg and Tseng have defined credibility as believability, and for the purpose of this study I will use their definition.

[10] According to the Oxford English Dictionary trustworthiness is a quality of being reliable or worthy of trust; while, expertise is defined as an expert opinion or knowledge, as well as the skill or expertness in a particular branch of study (OED Online Oxford University Press. 15 March, 2004. http://oed.com).

perceptions apply online and offline. These include background checks on both people and organizations, providing personal information carefully, and checking for privacy statements (Goldberg, 1998). But beyond simply trusting the information providers, the Web credibility issue also refers to the credibility of the information itself. While on a printed page authorship is clearly identified and the credibility of authors is usually guaranteed by the editorial review processes of book publishers and journals, most Web sites remain un-reviewed (Banks, 2001).

### 2.2.1. Web Credibility

On the World Wide Web, credibility refers to a number of factors, such as professionalism of its overall image, the perceived trustworthiness of the source, and/or the perceived trustworthiness of the information itself (Enos & Borrowman, 2001; Fogg, 2003). Often, the overall visual design of Web sites is considered a key factor in attracting and keeping visitors on the site (Fogg et. al., 2001; Perfetti, 2003). Jakob Nielsen[11] (1999) also noted that Web sites could communicate credibility through visual design itself. But, others see visual image as a secondary factor that affects credibility and persuasion in a general context (Petty & Caccioppo, 1981).

The majority of researchers have discussed Web site credibility in terms that apply to users only, saying that the success of most Web sites depends on whether Web users perceive them to be credible (Alexander & Tate, 1999; Fogg, 2003). And so, Fogg (2003) identified four types of credibility. These are as follows:

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[11] Jakob Nielsen has been the advocate of plain Web sites displaying fewer images and graphics; he has been stressing the importance of usability and functionality over visual design.

- Experienced credibility – which occurs when our belief is based on a first-hand experience. When users can navigate on a Web site easily, or receive a quick e-mail response from an organization, credibility grows. But, when a Web site has broken links, takes a long time to download, or contains factual errors, it is not convincing at all (Fogg, 2003; Nielsen, 1996).
- Presumed credibility – which describes our belief in something or someone because of our general assumptions. Domain names containing .org, or constantly updated Web site content increase credibility (Fogg, 2003; Alexander & Tate, 1999), while Web sites that are rarely updated or hosted on a free Geocities server decrease it (Fogg, 2003).
- Reputed credibility – which reflects our belief in something or someone because of what a third party has reported. Online, a referral from a doctor to a particular Web site, or a link from a high-reputation third party will increase credibility (Fogg & Tseng, 1999). But, the fact that a colleague did not like a certain Web site, or the site was down for a while, has a negative impact on credibility (Fogg &Tseng, 1999).
- Surface credibility – where our belief is based on a simple inspection. Usually, the way people dress or the language they use can influence credibility (Benoy, 1982; Berscheid & Walster, 1974). A Web page may appear credible because of its visual design alone, or because the organization behind it is familiar to the

viewer. However, when a site looks confusing, or uses many animated features[12], credibility suffers (Fogg, 2003).

**Table 2.1 Types of Credibility**

| | | Operator | Content | Design |
|---|---|---|---|---|
| Experienced Credibility | increase | The site provides users fast and helpful answers to their questions. | The site content has always been unbiased and accurate. | The site is easy to navigate. |
| | decrease | The site doesn't give contact information anywhere. | The site has typographical errors. | The site has links to pages that no longer exist. |
| Presumed Credibility | increase | The provider is a non-profit organization. | The site has ads from reputable companies. | The site was created by an outside design firm. |
| | decrease | The site tries to recruit advertises but has none so far. | The site shows only a few hits on their Web counter. | The site has no security protocol for transactions. |
| Reputed Credibility | increase | The provider is recognized by others as an expert. | The content has been approved by an outside agency. | The site won an award for a technical achievement. |
| | decrease | The provider was sued for patent infringement and lost. | The content got bad reviews from an outside agency. | The site has reported to have copied the design of other site. |
| Surface Credibility | increase | Users are familiar with the provider outside of the Web content. | The site appears to have lots of relevant information. | The site has a pleasing visual design. |
| | decrease | The site URL does not match the provider's name. | The site seems to have more ads than information. | The text font is either too small or too big to read comfortably. |

Source: Fogg, B.J. (2003). *Persuasive technology: Using computers to change what we think and do*. San Francisco, CA: Morgan Kaufmann Publishers, p.173.

[12] Web design literature shows that animated features (animated GIFs, Flash animations) often distract viewers or take long time to load (Nielsen, 1999; Spool, 1997; Weeks, 1997). Yet, there are a number of high quality Web sites built completely in Flash, but whether these are perceived as credible or not, will not be discussed in this study.

Table 2.1 presents a framework for Web credibility based on these four types. Fogg (2003) indicated how each of these types can be affected (increased/decreased) in terms of the following three variables: Web site operator (person or organization that offers the site), Web site content (information, functionality), and Web site design (aesthetic design, information design, technical design).

Fogg (2003) also claimed that credibility on the Web is important for viewers as well as designers. He seems to be the only researcher to include the role of a designer into the Web credibility issue. However, his argument was reduced to stating that a Web designers' role is to design highly credible Web sites, while Web users determine what information is credible (Fogg et. al., 2002). Fogg said that it is important that Web designers develop a theory of how users assess the credibility of online content. He proposed the Prominence-Interpretation Theory.

#### 2.2.1.1. The Prominence-Interpretation Theory

According to the Prominence-Interpretation Theory, two things happen when people assess credibility: an individual notices something (prominence) and makes a judgment about it (interpretation) (Fogg, 2003). Fogg (2002) claimed that before an element on a Web site can affect how users perceive the site credibility the users must first notice the element. In other words, the element must be prominent. For example, if users do not notice the design credits of a Web site, then design credits will not affect the credibility assessment in any way. On the other hand, a large image placed on a home page is likely to be noticed; it will, therefore, become an important element in the credibility assessment of the site. After a user notices an element on a Web site, the user evaluates it and makes a judgment about it (Fogg, 2002). For example, Web site content

that has not been updated for a long period of time may indicate that the Web site has been abandoned. Fogg identified key factors that affect the components of prominence and interpretation. These are illustrated in Table 2.2.

**Table 2.2 Factors Affecting Prominence and Interpretation**

| Prominence Factors | Interpretation Factors |
|---|---|
| User Involvement<br>User Experience<br>Web Site Topic | Users Assumptions<br>User Experience<br>Context |

Source: Fogg, B.J. (2002), Prominence-Interpretation theory: Explaining how people assess credibility. A research report by the Stanford Persuasive Technology Lab, p. 722.

According to Fogg (2002), the major factor affecting prominence is user involvement[13]. The reason behind it is that when a user is highly motivated (e.g., visits a Web site in order to make an important purchase, or to find an answer to a serious health problem), the user will notice more things about the Web site. User experience[14] and Web site topic also affect prominence, but are not as fundamental as user involvement (Fogg, 2002). When discussing interpretation factors, Fogg (2002) pointed out that users do not interpret matching Web site elements in the same way. Assumptions based on culture or past experience play a key role in making these judgments. Also, the context is relevant, and affects how Web site elements are read[15] (Fogg, 2002). The process of seeing and

[13] Fogg (2002) defined user involvement as a user's motivation and ability to examine Web site content.

[14] User experience relates to the level of familiarity a user presents with the subject matter, or with Web usage (Fogg, 2002).

[15] Fogg (2002) clarified that user assumptions include culture, past experience, etc., while context refers to a user's environment, expectations, or situational norms.

interpreting prominent elements typically happens more than once when a person evaluates a Web site (Fogg, 2002). However, if one or the other does not happen, there is no credibility assessment (Fogg, 2003).

#### 2.2.1.2. Stanford Credibility Study

Up until the late 1990s there was no large-scale academic research related to measuring the perceived credibility of Web sites (Fogg, 2003). In 1999, Fogg and his colleagues at the Stanford Persuasive Technology Lab initiated a number of large-scale tests on Web site credibility. They were almost identical in content and methodology; only a few things were modified to accommodate the changes in the World Wide Web that took places during the years (Fogg, 2003). The general focus of the tests was to study prominence. Fogg and his colleagues investigated what people noticed when asked to evaluate the credibility of two live Web sites on a similar topic (such as e-commerce, health, news, etc.) (Fogg, 2003).

The results from his early tests showed that credibility increases when users see a real organization and real people behind the Web site (Fogg, 2003). This indicates the importance of including photographs of the people or the organization's office building on Web sites. The results suggest that only formal photographs seem more believable and add to site's credibility; if photographs are of bad quality the overall site seems less credible (Fogg, 2001). "Ease of navigation, professional interface, and proper organization" (Fogg, 2001, p. 295) also increase credibility. However, spelling and typographical errors, as well as advertisements worked against establishing credibility (Alexander & Tate, 1999; Fogg, 2001; Nielsen, 2000).

The results of Fogg's largest test (100 Web sites) were based on responses from 2,684 participants and presented, according to Fogg (2003), the most interesting observation. What emerged from his study was the significance of visual design in assessing credibility on the Web. In total, almost half of all respondents mentioned the design look of the site as the major factor in assessing credibility (Fogg, 2003). Responses contained general observations about the design look of the sites ("looks professional") or specifics (the layout, the colors, etc.) (Fogg, 2003). A summary of the various issues about credibility from the Stanford Credibility Study completed in 2002 is displayed in Table 2.3.

Fogg (2002) and his colleagues were surprised by the results, and questioned whether people were really so influenced by visual design of the Web sites and not by other factors, like information content or technical issues. After all, finding high quality content and being able to deliver information to every type of Internet browser are two of the greatest strengths of the Web (Fogg, 2003). In order to explain the results, Fogg stated that looking good is often interpreted as being good, and, thus, being credible (Fogg, 2003). He justified the findings, referring to social psychology research, which has shown that physically attractive sources have often been perceived as credible sources (generally people) (Benoy, 1982; Berscheid & Walster, 1974; Dion, Berscheid & Walster, 1972). Indeed, people are usually continuously concerned with creating and maintaining a favorable impression or image in the minds of others (Andersen, 1978).

Finally, Fogg (2003) outlined a few implications for Web design professionals. He said that no matter how good a Web site's content is, the visual appeal of a site will have a considerable impact on how people assess credibility. Therefore, designers should

pay particular attention to the design look of sites in order to create highly credible Web sites. Fogg (2003) noted that, while some elements are outside of a designer's control, (for example a company's name recognition[16] and reputation), the choice of other elements is strictly up to the designer. Because not everything on a Web site can stand out, designers should carefully consider what Web site elements to make prominent (Fogg, 2003).

**Table 2.3 Stanford Credibility Study Results**

| Topic of Credibility Comment | Incidence |
|---|---|
| Design Look | 46.1% |
| Information Design/Structure | 28.5% |
| Information Focus | 25.1% |
| Company Motive | 15.5% |
| Usefulness of Information | 14.8% |
| Accuracy of Information | 14.3% |
| Name Recognition & Reputation | 14.1% |
| Advertising | 13.8% |
| Bias of Information | 11.6% |
| Tone of the Writing | 9.0% |
| Identity of Site Sponsor | 8.8% |
| Functionality of Site | 8.6% |
| Customer Service | 6.4% |
| Past Experience with Site | 4.6% |
| Information Clarity | 3.7% |
| Performance on a Test | 3.6% |
| Readability | 3.6% |
| Affiliations | 3.4% |
| (Categories with less than 3% incidence have not been reported). | |

Source: Fogg, B.J. et al. (2003), How do users evaluate the credibility of Web sites? A study with over 2,500 participants. p. 5.

[16] For discussion of branding and name recognition, see Naomi Klein's *No Logo: Taking Aim at the Brand Bullies.* New York: Picador USA, 2000.

## 2.3. Visual Perception

We receive 75% of our daily information through vision; therefore, it is not a surprise that we have learned to rely on what we see (Allen, 1996; Arnheim, 1969). The visual presentation of the information shapes audience perception of the information and affects the audience's ability to learn from the information (Kostelnick, 1989). Therefore, knowledge about perception is essential when deciding on how to use colors, images, and how to group information on the screen (Lif, 1998). Several theories on how people classify visual patterns have been generated over the years, one of which is the Gestalt theory (Carlson & Buskist, 1997; Gibson, 1950; Lif, 1998).

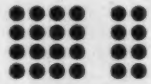
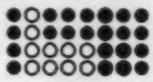
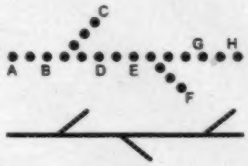
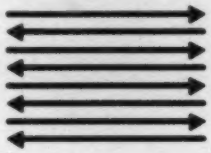
### 2.3.1. Gestalt Theory

Developed in the early 20th century by a group of German psychologists, the Gestalt theory explains how we perceive visual organization – all parts of a visual image may be considered and analyzed not only as separate, distinct elements (Berryman, 1984), but also as well-organized configurations (Matlin & Foley, 1992). A collection of dot patterns can be perceived in different ways depending on how the observer groups them. The Gestalt theory presents a number of principles for organizing elements in a visual field (Gleitman, 1991; Horn, 1998). These are identified in Table 2.4.

According to Ji Hee Song and George M. Zinkhan (2003), Web site design is a gestalt process. Experienced users, through decoding frequently occurring meaningful patterns, can comfortably navigate on a Web site (Nygren, Allard, & Lind, 1996). Stephen Baker (1961) pointed out that consumers do not always analyze each single element on a page, they 'feel it'. So, if a collection of objects always has the same location on the screen, global patterns may emerge over time that can guide the user's

viewing process. It is also possible for the users to decode a pattern if the variable has always the same unique color or shape (Allen, 1996).

**Table 2.4 Gestalt Principles**

| | |
|---|---|
| **Principle of Proximity**<br><br>Elements that are spatially close together are perceived as a group. |  |
| **Principle of Similarity**<br><br>Elements that look alike are perceived as a group. |  |
| **Principle of Good Communication**<br><br>Elements arranged as if they were following a simple path or an outline are perceived as a single, continuous element. |  |
| **Principle of Closure**<br><br>Elements with a gap are perceived as a group to form a closed unit. | |
| **Principle of Common Fate**<br><br>Elements that move in the same direction are perceived as a group. |  |

Note: Adapted from examples in: Mullett, K. & Sano, D. (1995). *Designing visual interfaces: Communication oriented techniques*. Englewood Cliffs, NJ: Prentice Hall.

### 2.2.2. Color

People use color to categorize objects in their everyday lives (Cooper & Matthews, 2000). They sense color through the eye, but perceive it through the mind.

Color is also used as an aesthetic element that communicates to the user on an emotional level (Schaeffer & Bateman, 1996). It can be experienced at different levels of awareness and often understood as a form, a light or as a surrounding (Holtzschue, 2002).

As a result of individual differences and many demographic factors, there are certain advantages and disadvantages when using color in visual communication design (Baker, 1961; Berryman, 1984). In general, color focuses attention, reveals organization, and makes things more realistic. Used as a navigational aid, color can make the interface more effective. Used conservatively and appropriately, color is a powerful tool for reassuring consumers and establishing customer loyalty (Chatjet & Schachtman, 1991).

Color can distract or tire the eyes, and it can be unpredictable as it is displayed slightly differently on different computers. It can also interfere through association. Since designers work with color all the time, they must understand color and its meaning, and pay close attention to messages and emotions implied by certain colors (Baker, 1961; Berryman, 1984; Dormann, 2002; Holtzschue, 2002; Rowden, 2000). Rowden (2000) noted the vitality of bright colors as indicators of youth and optimism, and dark tones as signs of maturity and history. For example, some children like yellow, but some older people like dark blue (Baker, 1961). Market research has shown that red is the most attention-grabbing color (Hamilton, 1970). Although audience color preferences can vary annually and seasonally (Berryman, 1984), pastels usually appear gentle, while neutral tones have the ability to complement a wide range of other colors, and are therefore stable choices over time (Rowden, 2000). Furthermore, different cultures assign different meanings to colors that can lead to difficulties in designing for global audiences (Boyle, 2001; Hamilton, 1970). For, example, the worldwide meaning of green is 'go' in traffic

signals, but in the West it is the color of ecology or of freshness, and in Egyptian tradition green is associated with death and fertility. White means purity in the West and mourning in the East (Holtzschue, 2002; Olins, 1990).

On the Web, color includes the color of the text, the links, the background and the graphics. Web practitioners have suggested using fewer colors to improve the appearance of Web sites; a limited color palette was a 'good' palette (Berryman, 1984; Porter & Sullivan, 1994). In agreement, Jenny Preece (2000) suggested avoiding excessive use of color. For the majority of Web sites, Preece recommended soft colors for backgrounds and contrasting colors for text. However, the final color combinations a designer decides to use depends mainly on the target audience of a Web site (Preece, 2000). For example, *Wired* magazine uses bright colors for both the Web site background and text on the Web site to appeal to its young audience. All things considered, there are no clear answers as to which color is most effective in Web design (Garber & Hyatt, 2002). Yet, it is clear that color on the Web should be used to serve a clear purpose, and not for its own sake (Knupfer, 1997). A summary of recommendations for the effective use of color as a visual communication tool is included in Appendix A.

### 2.2.3. Imagery

Images, particularly photographs, play an essential role in visual communication by attracting the viewer's attention (Messaris, 1997; Tufte, 1985), providing relevant information (Sontag, 1992), and/or provoking emotions (Dormann, 2002). Consumers receive a lot of information from images that influence their decisions. Images enable viewers to process information with precision and speed, providing a variety of different ways of looking at a particular organization or a product (Dormann, 2002). According to

Baker (1961), no amount of text can carry the conviction of an image. He added that, because people are very sensitive to the emotions of others, visual designers show happy people to make others happy, or sad faces to create reflective moods, etc. Paul Messaris (1997) identified two semantic properties[17] of images that are important for visual designers:

- Iconicity – images can simulate the visual appearance of reality in order to bring out attitudes and emotions associated with real-world people and objects. Iconicity plays an important role in fashion imagery, or advertising dealing with sexual or gender imagery.
- Indexicality – images can serve as evidence in support of commercial, political, or social advertisers. Due to the automatic nature of the photographic process, photographs used to appear more trustworthy than words or handmade images; however, the documentary quality of photographic images is now threatened by computer manipulation.

- According to some researchers, people are attracted to elements that are emphasized, and interpret these as being the most prominent pieces of information (Freeman, Rodgers & Bloomberg, 2000). Nancy Allen (1996) agreed and stressed the use of emphasis in photographs saying that close-up photographs can reveal details that create a different subject. She provided an example of a picture displaying factory workers. One photograph showed the workers' general size and apparel – this image makes a statement about the factory, and is rather informative. However, another photograph that showed just the face and hands of one particular worker provides a

[17] Semantic properties describe how the elements of a particular mode (images, words, etc.) are related to their meanings (Messaris, 1997).

statement about that worker's conditions and feelings, and evokes emotions in the viewers.

Rudolph Arnheim's research on the ways in which people perceive images also has many implications for Web designers. Arnheim (1969) stated that similarity between images or among elements of a single image allows viewers to categorize or group visual elements together. This could point to the use of repetitive elements in Web design as a way of establishing a perception of the Web site as an organized unit in the minds of consumers. Also, in terms of Web design, Jared M. Spool (1997) recalled his conviction that images were one of the most important aspects of Web sites, and that more graphical sites were more interesting to users. He admitted that he was not able to prove his theory experimentally, and his tests showed that images did not seem to add or detract from users' experienced on the analyzed Web sites. He found out that there was no evidence of images helping or preventing users from retrieving information on the Web (Spool, 1997). Similarly to one of the recommendations on the effective application of color, images on the Web should also be used to serve a clear and meaningful purpose and not for their own sake (Knupfer, 1997). A summary of recommendations for the effective use of imagery as a visual communication tool is included in Appendix B.

### 2.3.4. Layout

Layout can be explained as the visual arrangement of elements on a page including the "white space" or unused portions of the page. Layout is a very subjective topic, but the important thing is to make sure that there is a layout as opposed to just putting information up. Effective layout affects an audience's general impression and use of documents (Lay, 1989). Mary M. Lay supported this view by quoting Lenore

Ridgway, "the first effect of a panel on a user is pictorial. Users see the layout and the overall pictorial effect before they recognize that there are words" (1989, p. 73). Lay identified three design rules that designers should follow in order to create effective layouts. These are:

- Unity – it is the primary appearance of the whole page or screen; it integrates all parts of communications, including text. Unity can be achieved through repetition of the same element, color or shape.
- Balance – what appears on one side of the vertical line of an axis on a page is equally balanced with what appears on the other side. Balance can be symmetrical or asymmetrical because large, unusual, or colored elements appear heavier than small, ordinary, or black and white elements.
- Proportion – the relative size of elements and of the page/screen as a whole. A screen divided into a 50:50 ratio is monotonous, and it may give the audience no indication of which portion is more important. It is recommended to apply contrast, because it creates meaning.

Whatever the graphic elements of a page design, in both print and on the Web, its success often depends entirely on these three principles. Sometimes just a simple rearrangement of elements on a page will make it functional and aesthetically pleasing (Glenwright, 2001; Whitworth, 2001).

According to Kevin Mullett and Darrell Sano (1995), simplicity is crucial in designing effective layouts, and the key element that plays a fundamental role here is white space. White space can be defined as the empty area on a page. Keith Robertson called it the ultimate value in graphic design: "White space is nothing. White space is the

absence of content. Yet white space is the ultimate value in graphic design (…) white space is the supreme symbol of class" (1994, p. 61).

White space can be used to group or separate logical units of information, give the page an uncluttered, and therefore, more welcoming appearance, and create visual relationships between page elements (Misanchuk & Schwier, 1995). According to Robertson (1994), it is the one graphic design variable that constantly grows in terms of quality; its presence is a symbol of elegance and simplicity, while its absence is a symbol of vulgarity, cheapness, and bad taste.

On a display screen liberal use of white space becomes even more critical because viewers become tired more quickly than when looking at a printed page (Lay, 1989). Nielsen (2000) claimed that white space might be useful only if it has a purpose, such as assuring cross-platform and resolution independent design. The general agreement among Web practitioners is that effective Web design organizes the presentation with white space, while taking into consideration the limited real estate of 15-inch or smaller monitors. Weak design, on the other hand, attempts to fit too many elements onto one Web page (Meads, 2002). A summary of recommendations for the effective use of layout as a visual communication tool is included in Appendix C.

### 2.4. Web Design Criteria

Web site design is a new area of the visual communication discipline, and there are no academically proven guidelines about what makes an effective Web site. There are a number of general criteria and recommendations of the applied practice that help designers to create effective Web interfaces (detailed recommendations for an effective Web design can be found in Appendix D):

- Authority – the extent to which content is the creation of a person or organization recognized as having definitive knowledge of a given subject area (Alexander & Tate, 1999); a Web site should answer what body is responsible for the content, should display the body's logo as well as contact information and the qualifications (Alexander & Tate, 1999; Fogg, 2003).
- Accuracy – the extent to which information is reliable and free from errors (Alexander & Tate, 1999); the information displayed on a Web site should be free of grammatical, spelling and typographical errors (Alexander & Tate, 1999; Fogg, 2000; Nielsen, 2000).
- Consistency – refers to the organization and visual presentation of such elements as color scheme, imagery, layout, topography, and so on (Nielsen, 2000; Norlin, 2002); a Web site should have a consistent look and page pattern (Fogg, 2003; Lynch & Horton, 1997) and all information should be well-organized (Milheim & Harvey, 1998; Weeks, 1997).
- Currency – the extent to which materials can be identified as up to date (Alexander & Tate, 1999); a Web site should include a date of last information update, and some information about the body responsible for the maintenance of the Web site (Alexander & Tate, 1999; Fogg, 2003).
- Objectivity – the extent to which materials express facts or unbiased information that do not conflict with personal feelings of potential viewers (Alexander & Tate, 1999); all content on a Web site should aim relatively at the target audience.

- Simplicity[18] – refers to a simple and easy to use interface, and is one of the most important tools for Web designers (Nielsen, 2000; Norlin, 2002), and also the most often violated rule in Web design (Weeks, 1997); a simple, uncluttered Web site can generally offer easy access to information (Nielsen, 2000) and a satisfying experience for the user visiting the site (Fleming, 1998).
- Usability – is concerned with the ease of use of a Web site and the ease of learning (Alexander & Tate, 1999; Fogg, 2000); it can be measured through task performance, task time, and subjective satisfaction (Morkes & Nielsen, 1997).

The overall visual image, consisting of elements such as color, imagery and layout, is often the first thing users encounter when they visit a Web site. The visual design, therefore, should provide users with the information and the look-and-feel that would make the users recognize the organization behind the Web site as credible, and persuade the users to spend more time on the site (Nielsen 2000; Singh & Nikunj, 1999).

**2.5. Business Web Sites**

The visual appeal of Web sites matters. Not only the type of information presented on a Web site, but also the way it is displayed should positively and accurately represent a business, organization or an individual (Damron & Gillette, 2002). As research has shown, a Web site[19] should not only be functional, but also usually pleasing in order to be perceived as credible, because appearance has an immediate impact on a

[18] Schwerin and Nevell (1981) say that simplicity is one the fundamental rules of persuasion; therefore, structure and order of any product or marketing tool (i.e. Web site) should be as simple as possible.

[19] Including any human-computer-interface system.

user's opinion about a product, a service or a company (Norlin, 2002; Lif, 1998). Magnus Lif stated,

> When a customer chooses between two products, he does not only compare the usefulness of the products. The aesthetic part is also important. (…) The 'look and feel' of a product can be essential for making the user feel comfortable with the system. Also, it becomes a way to compete with rival companies on the market (1998, p. 19).

Jennifer Fleming (1998) supported Lif's view, saying that a company's Web site is an important way of interacting and communicating with customers on the Web, and that people tend to make quick decisions about companies based on their Web presence. Fleming said about Web sites,

> Your site is your alter ego in cyberspace, and visitors will judge you accordingly. Your interaction with users on the Web should be as compelling as those that occur off the Web, since you'll be judged by many of the same social standards. In both cases, a positive or negative experience can make a lasting impression (1998, p. 165).

If a site sells a service, the overall design must present content that tells users why they should hire the company, what makes the company a credible provider (Perfetti, 2003). It is especially important for fresh businesses and organizations, for example businesses run by student-entrepreneurs, because those are emerging individuals who put themselves in a competition with established businesses. Web sites of those businesses, communicating visual messages, make the consumer aware of the product or service (Singh & Nikunj, 1999). Researchers at Cheskin, a market research company, claimed that unknown businesses must build Web sites with high quality, strong visual appeal and navigation; it is the only way they can compete with known and established companies (Cheskin, 2002). In this way, unknown businesses might be able to build credibility among potential clients (Preece, 2002).

Hunt (1996) pointed out that Web sites are the means of persuading consumers to explore, to buy, or to join the organization. They can display characteristics of the rhetorical[20] modes of appeal first introduced by Aristotle (Dormann, 2000; Hunt, 1996). In order to understand how Web sites can serve a classical rhetorical function and how designers can use visual rhetoric in designing Web sites, it is important to discuss the concept of rhetoric and three rhetorical modes of appeal.

### 2.6. The Concept of Rhetoric

Rhetoric has a long history. It has been defined and used in many different ways over the centuries, which makes it difficult to give a simple definition (Blasi, 1985). Aristotle is one of the first theorists to define rhetoric and his definition is one of the most influential today (Lucaites, Michelle & Caudill, 1999). Rhetoric, according to Aristotle, is "the faculty of observing in any given case the available means of persuasion" (1355b, p. 25). His definition focused rhetoric on persuasion, an association that is still quite common today among theorists and critics. Rhetoric, in Aristotle's day, was primarily oral and commonly seen as a tool to achieve goals, such as passing laws or making judicial decisions (Bonsiepe, 1996). Although it was not seen as occurring in the normal, everyday communication of individuals, Aristotle pointed out that all people have a share in rhetoric because they all attempt to persuade one another of various ideas and beliefs (Ehses & Lupton, 1988).

In both the Middle Ages and Renaissance, rhetoric remained in the service of religion, politics and literature. British scholar Francis Bacon presented the following

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[20] The term 'rhetorical' comes from the Greek word 'rhetor', which means 'orator'. In the Oxford English Dictionary, rhetoric is defined as the art of speaking and writing effectively to persuade or influence others (OED Online Oxford University Press. 15 March, 2004. http://oed.com).

definition of rhetoric: "the duty and office of rhetoric is to apply reason to imagination for the better moving of the will" (Kaminski, 1996, Overview section, para.2). Bacon's view of rhetoric marked a significant departure from Aristotle's theory of rhetoric. While Aristotle approached rhetoric from the perspective of the speaker, Bacon focused on understanding the mind of the audience; he took a psychological approach to rhetoric (Kaminski, 1996). Kenneth Burke defined rhetoric as "the use of language as a symbolic means of inducing cooperation in beings that by nature respond to symbols" (Horner, 1988, p. 5). For him, symbols[21] were the essential element of rhetoric. Symbols communicate meaning, but they rely on culture in which their meaning is established (Mullett, 1995). Therefore, using symbols to induce actions or change public opinions might not have the same impact on one audience as on another.

In the mid-1900s, rhetorical theorists began to focus more on the implications of rhetoric within particular cultures, and less on how communicators could use rhetoric to create effective messages. They began to focus more on the social, cultural, and ethical dimensions of rhetoric (Fogg, 2003). Edward P.J. Corbett defined rhetoric as: "(...) the art or the discipline that deals with the use of discourse, either spoken or written, to inform or persuade or motivate an audience, whether that audience is made up of one person or a group of persons" (Corbett & Connors, 1971, p. 1).

Thomas Farrell also used the word 'discourse'[22] in his definition of rhetoric:

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[21] A symbol is defined as something that represents something else not by exact resemblance, but by suggestion, or conventional relation (*OED Online* Oxford University Press. 15 March, 2004. http://oed.com). In other words, symbols are objects or actions that mean something more than their literal meaning.

[22] The word "discourse" has been a problem term in the Humanities, and there are many definitions. The Oxford English Dictionary, for example, provides a number of definitions to explain discourse: "the act of the understanding, by which it passes from premises to consequences", "the faculty of reasoning", or "communication of thought by speech" (*OED Online* Oxford University Press. 15 March, 2004. http://oed.com).

"a collaborative manner of engaging others through discourse so that contingencies may be resolved, judgments rendered, action produced" (1990, p. 78). Rhetoric is seen as a way of explaining people's experiences, generating actions and producing meanings (Farrell, 1990; Rosteck, 1999). Walter J. Ong considered it as a powerful tool that helps individuals establish or changes values, affect emotions, or fix attitudes in the audience (Horner, 1988). He noted that rhetoric, as "the art of producing genuine conviction in an audience," (1998, p. 3) shapes all human actions as no other tool does. Rhetoric looks at all aspects of communication in terms of the message, the speaker, the audience, and the occasion (Horner, 1988).

Originally limited to spoken discourse, the notion of rhetoric kept changing as the channels of communications evolved. It has grown from public speaking to include all the modern forms of persuasive discourse, both verbal and nonverbal, music, graphical images, cinema, television, and advertising (Allen, 1996; Corbett, 1971; Rosteck, 1999). Visual communication scholars believe that rhetoric can enhance visual communication design just as verbal rhetoric is used to make speech more effective (Ehses, 1989). Sonja Foss stated, "visual images now have the significance that public speeches once did" (1993, p. 211). Today, any message, even one on the Web, can be considered rhetorical (Fogg, 2003; Jankiewicz, 2003; Winn, 2000). Building on this idea, it is important to discuss rhetorical modes of appeal and how they are applied in visual communication design.

### 2.6.1. Rhetorical Modes of Appeal

There are three types of rhetorical appeal: the logical (logos), known also as the rational; the emotional (pathos); and the ethical (ethos) (Cooper, 1932; Covino & Jolliffe,

1995). The three appeals describe the way a speaker's argument engages its audience; the speaker might impress, amuse, flatter, anger, offend, or even accuse. The appeals are often referred to as modes of appeal or modes of persuasion and also play a vital part in the art of visual communication design (Buchanan, 1989).

**Table 2.5 Characteristics of Rhetorical Modes of Appeal**

| Logical Appeal (Logos) | Ethical Appeal (Ethos) | Emotional Appeal (Pathos) |
|---|---|---|
| • aims to inform and instruct;<br>• plain information and facts;<br>• realistic terms;<br>• signs of intellectual authority (authoritative language, quotations, statistics and numerical data);<br>• scientific drawings and hard edges);<br>• the appeal to reason. | • aims to delight or win over;<br>• morally appropriate;<br>• beautiful and ornate;<br>• focus on decorative and aesthetic qualities of a design;<br>• addresses traditional values, tasteful ideas and concepts;<br>• refers to sensibility, taste and philosophical belief. | • aims to move;<br>• intense;<br>• discordant;<br>• shares deeply personal emotions with the community;<br>• attempts to provoke non-rational or a passionate response (more or less predictable);<br>• names violent feelings like love, hate and revenge. |

Note: Adapted from examples in: Ehses, H. & Lupton, E. (1988). *Rhetorical handbook: An illustrated manual for graphic designers*. Halifax: Nova Scotia College of Art and Design Press.

Hanno Ehses considered the modes of appeal as tools for generating design ideas in print. He believed that, through rhetoric, designers are able to express concepts using the choice of words, images, format, style, color, type and materials (Ehses & Lupton, 1988). Ehses suggested that the rhetorical modes of appeal can also be utilized in Web design (Ehses, personal communication, September 25, 2003). He created a model for each of the modes of appeal, which is illustrated in Table 2.4.

According to Aristotle, true persuasion occurs when the rhetorician successfully utilizes a proper combination of the three appeals (Horner, 1988). A number of

contemporaries agreed with his idea of mixing the appeals. Kenneth Andersen said, "the most effective persuasion demands a fusion of various appeals" (1978, p. 152). Ehses recommended using a combination of some or all of the three appeals, usually stressing one over the other, to achieve the most persuasive results in visual design (Ehses & Lupton, 1988; Ehses, personal correspondence, September 25, 2003). S.N. Singh and P. Dalal Nikunj (1999) Also, Horace S. Schwerin and Henry H. Newell (1981) advised designing messages that are perceived as rational or emotional, or a combination of the two appeals.

#### 2.6.1.1. The Logical Appeal – Logos

The logical appeal (logos), known also as the rational appeal, targeted toward our ability to make rational choices. It is concerned with logic, reason, validity, and relationships within a formal structure (Andersen, 1978; Corbett & Connors, 1971). It aims to instruct and inform the audience (Ehses, 1989). The word 'logos' (translated from Greek as 'word' or 'reason') was held to be the very essence of humanity among ancient philosophers (Covino & Jolliffe, 1995; Horner, 1988). Logical proofs may significantly increase the credibility of a source. As Andersen (1978) pointed out, generally, people wish to appear logical because the presence of logic is often seen as a mark of respect. According to him, the rational appeal is likely to have a high degree of acceptance for friendly as well as hostile audiences. When applied to design, it employs factual and plain information to address the audience's respect for controlled, logical thinking.

Beyond its stated content, the rational appeal can also employ stylistic cues and signs of intellectual authority, like statistics, hard edges, scientific drawings, or quotations, to promote a product, a service, or an idea (Ehses & Lupton, 1988). Richard

Buchanan (1989) labeled logos as a way of technological reasoning saying that, "it is the backbone of a design argument; the way the designer manipulates materials and processes to solve practical problems of human activity" (1989, p. 96). He concluded that products are persuasive in this mode when they meet real needs in a reasonable and practical way (Buchanan, 1989).

Generally, documents distributed by companies or corporations are logos-driven. Scholarly documents are also often logos-driven (Ehses & Lupton, 1988). In advertising, the rational appeal uses a convincing proof or demonstration; its main goal is to persuade the viewer in realistic terms in order to leave him with the feeling 'I saw it with my own eyes' or to sell a product (Schwerin & Newell, 1981). On the Web, logos often refers to the logical construction of a Web site (Doherty, 1996). Is information located where it would be expected? Is the site navigation intuitive? Usually, the page is simple, safe, and efficient, all of which are appeals to the logic of the audience.

#### 2.6.1.2. The Emotional Appeal – Pathos

Pathos, the emotional appeal, aims to move the audience (Corbett & Connors, 1971; Ehses, 1989; Horner, 1988). According to Aristotle, it is the responsibility of the speaker to be aware of the audience's feelings, to understand its nature, and to appeal to the needs, desires, goals, and hopes of that audience (Horner, 1988). Ehses noted that pathos refers to intense feelings like love, hate, or revenge, provoking passionate responses from its audience, in a sensual, political, or spiritual sense (Ehses & Lupton, 1988). However, Edward P.J. Corbett warned the audience not to give in to the emotional appeal too easily, so that they do no regret some of their actions later on (Corbett & Connors, 1971).

Emotional appeal is popular in advertising, where images, slogans and entire compositions tend to be pathos-driven (Jankiewicz, 2003). Pathos can play a critical role in the online context (Winn, 2000). It can be compared to the 'warm' feeling that people get when looking at a Web site. Do users return to a site because they like it? Is the site visually appealing? To make the most use of the emotional appeal in creating Web sites, designers should design for a particular audience in a particular situation; they should identify and become familiar with the audience. They also should have an idea about what motivates and moves their audience. Knowing the audience's values will be helpful in establishing the designer's own integrity (Horner, 1988).

#### 2.6.1.3. The Ethical Appeal – Ethos

Although the use of logic and emotion were considered very important in ancient rhetoric, the ethical appeal (ethos), also known as the credibility of the rhetorician, was always central (Corbett & Connors, 1971; Enos & Borrowman, 2001; Horner, 1988). Thus, many researchers focused primarily on the concept of ethos when discussing rhetoric.

The ancient Greeks believed that a speaker who presented a strong moral character and a sense of good will established a strong credibility within a particular community of people who shared similar views and values (Crowley, 1994; Enos & Borrowman, 2001; Horner, 1988). It was said that the speaker's identity was trusted and his message believed. Aristotle stated, "persuasion is achieved by the speaker's personal character when the speech is so spoken as to make us think him credible. We believe good men more fully and more readily than others" [*Rhetoric* 1356a, p.4-9]. In judging what a person says, or how a person looks, the audience relied on the character of the

presenter. Through strong persuasive powers over the audience, the speaker was able to create ethos (Ehses, 1989; Jankiewicz, 2003). Ehses said that ethos also refers to the finer emotions of sensibility, taste, and philosophical beliefs (Ehses & Lupton, 1988). William P. Banks (2001) characterized two types of ethos: situated and invented. A situated ethos is the kind of character developed around the rhetorician. For example when we are dealing with people who are known or popular, these people have an established ethos that is situated in who they are. An invented ethos is the kind of character developed in the rhetorical work. For example, when we are dealing with text, it is the way the writer's words, phrases, examples of ideas establish the writer's authority. This type of ethos is often subject to the biases of the readers, but not always.

In print design, the ethical appeal aims to delight. It focuses on the aesthetic qualities, often addressing traditional values, tasteful ideas and concepts (Ehses & Lupton, 1988). And, because ethos is an appeal based on the character of the speaker, an ethos-driven document relies on the reputation of the author, and aims at invoking trust and respect (Ehses & Lupton, 1988). In the online context, ethos refers to the credibility of both information and owner of the Web site. Who are the sources for the information presented? Is the text well written? Jankiewicz (2003) admitted that Web users shape online rhetoric. Therefore, who the audience is determines the level of formality and many other features of the online content. Jay D. Bolter (1991) said that Web sites become voices of their designers and ethos is derived from the qualities of those voices. By designing Web sites that users find helpful or where users feel connected to, an organization may be able to create ethos based on identification with particular communities.

# Chapter 3. Methodology

In this chapter, I present the research method used in this study. First, I provide a review of available research methodologies and some background information on electronic surveys. Next, I describe the details of the applied research. I also discuss the development of the three Web sites used in this study, and I follow with an overview of the Web survey used for data collection. In this chapter, I also introduce the participants of this study, the ethical considerations as well as data collection procedures.

## 3.1. Research Methods

Rhetoric, interface design, usability studies, marketing, visual communication studies, to name a few, all contributed methodological approaches to the collection and analyses of research data. Generally, the choice of research methods is based on the researcher's preference, the individuals being researched, as well as time, money and accessibility (Hathaway, 1995). The nature of the research questions should guide the choice of quantitative or qualitative measurement (York, 1998).

Quantitative research in the liberal arts refers to counts and measures of social functions transported into numbers that, in a mathematical content, statistically support or do not support a hypothesis (Ross, 1999). It involves the use of structured questions where the response options have been predetermined and a large number of participants are involved. By definition, measurement must be objective, quantitative and statistically valid. Originally, quantitative methods were developed in the natural sciences to study natural phenomena, and ranged from surveys, laboratory experiments, formal methods, and numerical methods (Myers, 1997). Nowadays, these research techniques are used in

almost all of the social sciences, as well as many different fields, such as medicine, education, government, insurance, law, and psychology.

Qualitative approaches in the social sciences are based on subjective choices, and it is only the data obtained through qualitative methods that is objective. The approaches were developed to enable researchers to gain a better understanding of an individual's experience, to learn about consumer attitudes, beliefs, and behaviors (Myers, 1997). Qualitative data is usually not numerical, and the research techniques range from detailed interviews and focus groups to psycho-drama, story-completion, or mini-groups (Ross, 1999). Generally, researchers interview small numbers of people and/or conduct a relatively small number of focus groups to find out and identify people's perceptions, opinions and feelings about the topic or idea being discussed. The nature of this type of research is exploratory and open-ended. Qualitative research has always been very popular in advertising, brand names, and packaging (Creswell, 1994).

### 3.2. Electronic Surveys

In the late 1980s and early 1990s electronic mail was explored as a survey mode in market research and business-oriented publications (Nesbary, 2000; Schonlau, 2002). It offered the possibility of almost immediate transmission of surveys at little or no cost, and the targeting of a diverse range of participants in terms of demographic background (Nesbary, 2000; Norlin, 2002). However, early electronic mail was static, consisting of text-only messages delivered via the Internet. Electronic mail surveys resembled the linear structure of paper surveys and were generally limited in length. In mid 1990s, the Web quickly replaced electronic mail as the Internet survey medium of choice (Kuhnert & McCauley, 1996).

While early electronic mail was all text-based, the Web offered the possibility of multimedia surveys containing audio and video, as well as an improved user interface and more interactive features. The Web also offered a way around having to know the respondents' e-mail addresses. Like the traditional surveys, Web surveys allow researchers to use single select, multiple select, sliding scale, and open-ended questions. Furthermore, Web surveys add drop down lists that improve the look of questions with long lists of alternative answers (WebSurveyor, 2004). Web surveys are easier to conduct, and allow for decreasing the amount of data missing as compared to data collected through traditional paper surveys (Miller & Dickson, 2001; Stanton, 2002).

Both Preece (2000) and Schonlau (2002), as well as Alan Tse (1998) supported the use of Web surveys as a very effective method of collecting data in current research. They present a number of advantages, which can be summarized as follows:

- It is easy to gather the input of a large number of people and get the responses quickly.
- There is low cost per participant involved.
- Participants have continuous 24-hour/day, 7 days/week access to the survey.
- Data can be transferred immediately into a database for analysis.
- Since data is already stored in a digital format, it can be processed and analyzed quickly.

Yet, there are some drawbacks to this method of collecting data as specified by other researchers. The largest concern in the literature relates to the quality and the validity of the results collected online due to coverage error and the ability of participants

to access the Internet (Schonlau, 2002). Responses from minorities and the poor might not be captured because these people have fewer computers at home (Nesbary, 2000). This problem has decreased over time due to growth in computer access at home, in the workplace and in public forums like libraries. Web surveys do not always capture how people feel or behave because, often, ambiguous questions cannot be clarified, and this might lead to unclear answers (Fogg et al., 2000). Also, researchers might often not be able to control in any way that participants are taking the survey under the same conditions (time of day, private/public space, distractions, time constraints, etc.).

Overall, research has shown that participants are generally comfortable with Web survey methods and prefer online versions to paper and pencil versions or interviews (Norman & Friedman. 2001), although current research on the design and implementation of Web surveys has yet to produce an authoritative set of rules on constructing these surveys most effectively (Schonlau, 2002). It is anticipated that over the next few years the practice of designing and implementing Web surveys will be refined significantly (Schonlau, 2002).

### 3.3. Research Process

For the purpose of my research, I created three alternate Web site interfaces in order to collect information on how the overall visual appeal of each (as expressed through color, imagery, layout) affects the perception of the credibility of a Web site run by a student consulting business, Humanitech. The characteristics of the rhetorical modes of appeal influenced the look of each of the three Web sites. I also developed a questionnaire to gather people's opinions and preferences with respect to the three Web sites. Choosing a Web survey, which would allow me to mix open-ended questions (to

obtain qualitative data) with predetermined response questions (to obtain quantitative data), seemed the most effective way of distributing the questionnaire.

Fleming (1998) said that combining user testing with casual interviews, online surveys, and on-site observation can help Web designers understand the full scope of their task. While interviews and focus groups often result in new processes designers might not have considered, and user testing can assist in fixing problems designers might have not noticed, online surveys are the most useful method for getting general opinions and attitudes (Fleming, 1998). In my approach, I combined both quantitative and qualitative methodology to build the Web survey.

### 3.3.1. Development of the Web Sites

Most businesses have an 'online brochure' type of presence on the World Wide Web; it usually consists of a Web site with four to six pages describing a company, products, or services (Dowling, Kuegler & Testerma, 1996). As part of my research process, I prepared a series of Web site critiques[23]. Using a template, I examined Web sites belonging to corporations, student-run businesses, graphic designers and a usability specialist. In total, I looked at fifteen Web sites. The selected Web sites had a similar content area and/or similar target audience to that of my research topic. My focus in developing the template was to find out what was the look-and-feel and the dominant rhetorical mode of appeal of each site, and how color, imagery and layout functioned together to support this mode of appeal. Each critique allowed me to gain an insight into a number of aspects of the three Web site models to be used in my study, such as current trends in Web page design, look-and-feel, content organization and/or navigation.

[23] A Web site critique is an analysis of a Web site according to a set of parameters predetermined by designers and based on their information needs. The set of parameters is organized into a template.

**Table 3.1 Web Site Characteristics Determined by Rhetorical Modes of Appeal**

| | Rational Appeal (Logos) | Ethical Appeal (Ethos) | Emotional Appeal (Pathos) |
|---|---|---|---|
| **Color** | • limited number of colors;<br>• often black, grey and white, with blue used as link color;<br>• white background and black text;<br>• Times New Roman font. | • conventional color combinations;<br>• lots of blue;<br>• colors schemes used in traditional corporate publications (blue & red, blue & yellow, green & black, etc.). | • unpredictable use of color; sometimes each pages is displayed in a different color;<br>• bright colors, or monochromatic pages with a strong focus on images;<br>• sans serif fonts. |
| **Imagery** | • aims to inform;<br>• documentary style photographs;<br>• sometimes tend to have a corporate feel to them;<br>• technical drawings and graphs. | • aims to delight;<br>• addresses the moral and aesthetic values of an audience;<br>• corporate, conservative photos of people wearing suits, shaking hands. | • aims to move;<br>• attempts to provoke a passionate response;<br>• blurred and/or abstract images;<br>• close-up photos of people and/or body parts. |
| **Layout** | • intuitive site navigation;<br>• logical construction of pages;<br>• often text-dominant and one, long page layout. | • intuitive site navigation;<br>• proportional, well balanced and consistent;<br>• often image-text balanced. | • intuitive or hidden navigation;<br>• might be inconsistent and unpredictable;<br>• often image-dominant. |
| **Model** | • plain one-page style Web sites designed during the mid 1990s. | • conservative Web sites of banks or large-scale corporations. | • funky Web sites of young designers and trendy design studios of the early 2000s. |

Integrating my findings from the Web site critiques and from Hanno Ehses' model[24] introduced in the previous chapter, I emerged with a set of visual guidelines, with respect to color, imagery and layout that influenced the visual design of each of the three Web sites developed for this study (see Table 3.1).

[24] Ehses' model also served as a tool for collecting some of the vocabulary used in the Web survey (question 1 and 2 of the Web Site Evaluation section).

In designing the three Web sites, the textual content and the elements of branding (company name and logo) were given. These were not to be modified and were the same for all three Web sites (Web site A – Emotional; Web site B – Ethical; Web site C – Rational). The only elements I was able to manipulate when designing the Web sites included color, imagery and layout. I prepared a navigation flowchart to visualize the content organization of the Web site. Each Web site included a home page and four content pages (About, Services, Projects, Contact), as illustrated in Figure 3.1.

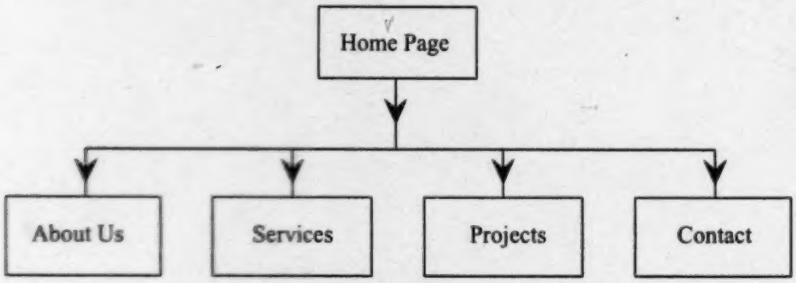


**Figure 3.1 Humanitech Web Site Flowchart**

### 3.3.1.1. Web Site A

Web site A (based on the emotional appeal) reflected the appearance of Web sites for young designers and trendy design studios that started to turned up on the World Wide Web in the early 2000s. There are a number of popular 'looks' ranging from mono-chromatic Flash sites to bright-colored layouts, often image-dominant with large close-up photographs of people, body parts, and/or abstract objects. The majority use sans serif fonts to display text. Sometimes the use of color on such Web sites can be unpredictable and pages are displayed each in a different color. Yet, in general, the overall look appears to be coordinated and many of the Web sites look attention-grabbing. The following three

examples display sample screenshots of selected Web site where pathos is the dominant mode of appeal.

**Figure 3.2 Raw Media – Home Page**
Source: http://www.rawmedia.com

**Figure 3.3 College Pro Painting – Home Page**
Source: http://www.collegepro.com

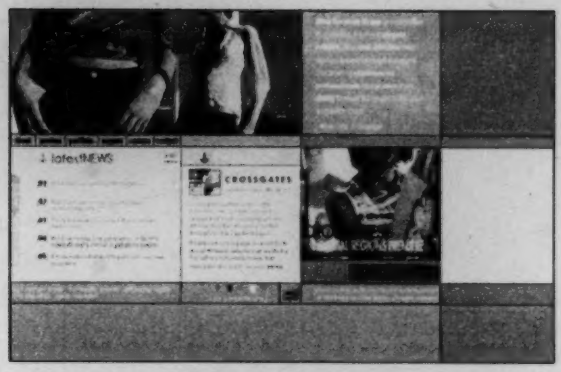

**Figure 3.4 Web Services Group – Home Page**
Source: http://www.Webservicesgroup.com

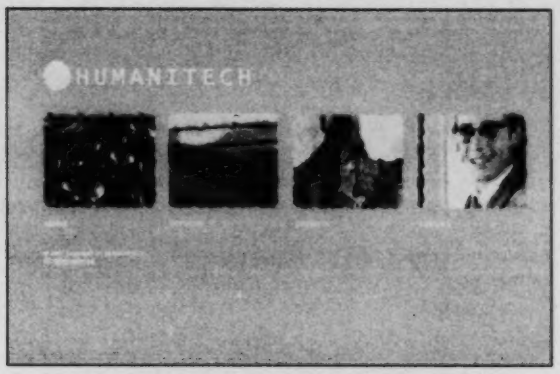


**Figure 3.5 Web Site A – Home Page**

The first most distinctive feature of Web site A is the yellow background. I used a bright yellow color to grab the viewers' attention and create a lot of energy, even though yellow is considered one of the least preferred surface colors (Bradshaw, 1998). The white text made the Web site look even brighter. Large images are the second distinctive feature of this Web site. I selected images that were more abstract and able to provoke an unpredictable emotional response. I aimed at keeping the layout quite simple and

consistent throughout the pages. Figure 3.4 displays a screenshot of Web site A. Screenshots of the remaining pages within this site can be found in Appendix E.

#### 3.3.1.2. Web Site B

Conservative Web sites of banks and large-scale corporations served as an inspiration for the design of the Web site B (based on the ethical appeal). These Web sites are often text-image balanced. The main characteristic is their very conventional color combination (red & blue, black & green, blue & yellow, etc.) and the universal use of blue as the dominant interface color. Images are of moderate dimensions and are used only to enhance, not to decorate, the page (Nielsen, 2002; Spool, 1997). Generally, photographs depict people wearing suits, shaking hands, sitting at workstations, etc. Majority of these Web sites display a very corporate look-and-feel with balanced and consistent layout and intuitive site navigation. The following three examples display sample screenshots of selected Web site where ethos is the dominant mode of appeal.

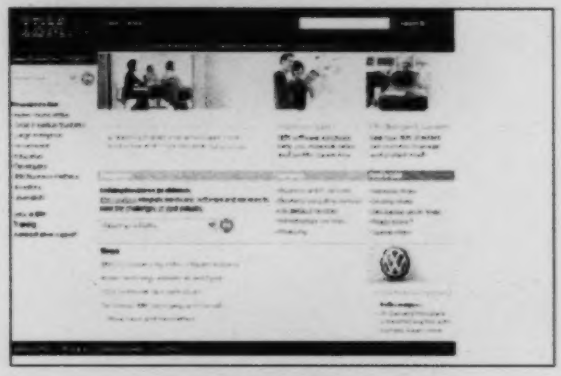

**Figure 3.6 IBM – Home Page**
Source: http://www.ibm.com

**Figure 3.7 Student Legal Services – Home Page**

Source: http://www.slsedmonton.com

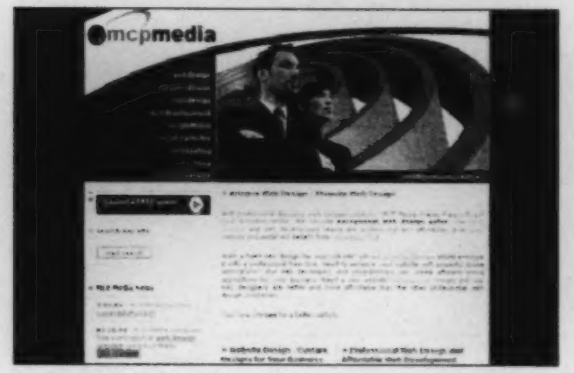


**Figure 3.8 MCP Media – Home Page**

Source: http://www.mcpmedia.com

**Figure 3.9 Web Site B – Home Page**

In order to achieve such a 'corporate' look-and-feel, I decided to apply various shades of blue to the background and to other elements of Web site B. The layout consists of a traditional top banner displaying duotone photographs (different photograph on each page) of business machines and of people in business-like situations. The contact page includes photographs of the management within the body text. The company branding information fills a small portion of the page and the remaining area displays textual content. The top navigation menu is clearly labeled. I aimed at giving the impression of an elegant and well-coordinated brochure. A sample screenshot of Web site B is displayed in Figure 3.8. Screenshots of the remaining pages within this site can be found in Appendix F.

### 3.3.1.3. Web Site C

The final Web site, which was based on the logical appeal (Web site C) was modeled after the plain, one-page style Web sites popular during the mid-1990s. These Web sites appear to be text-dominant and require a lot of scrolling because the content is usually placed on a single page. The navigation is simple and consists of anchored links;

all links are by default blue (unvisited links) and purple (visited links). The pages display a limited number of colors; the background is often grey, white or cream. The text is often black and Times New Roman font is used by default. Images, if any, are scarce, usually limited to a documentary style small photographs or clipart illustrations. It seems that the main purpose of such Web sites always is to provide extensive information. The following three examples display sample screenshots of selected Web sites where logos is the dominant mode of appeal.

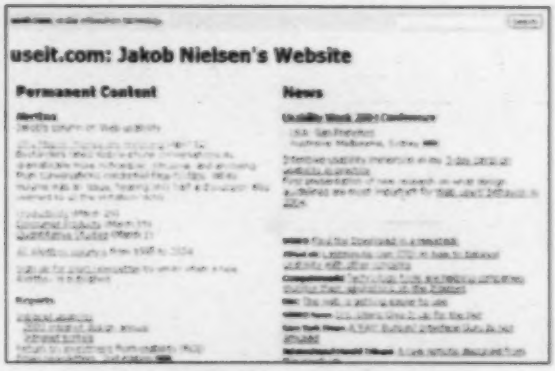


**Figure 3.10 UseIt.com – Home Page**
Source: http://www.useit.com

**Figure 3.11 Creative Juices – Home Page**
Source: http://www.creative-juices.com

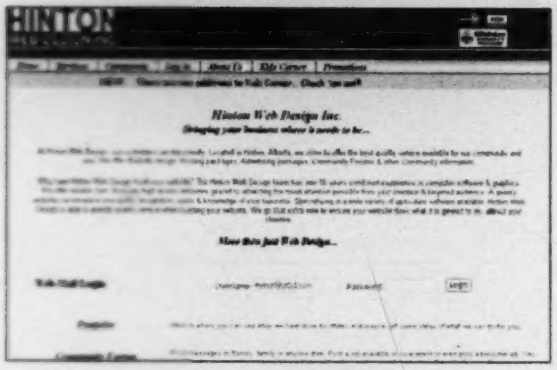

**Figure 3.12 Hinton Web Design – Home Page**
Source: http://www.hintonWebdesign.ca

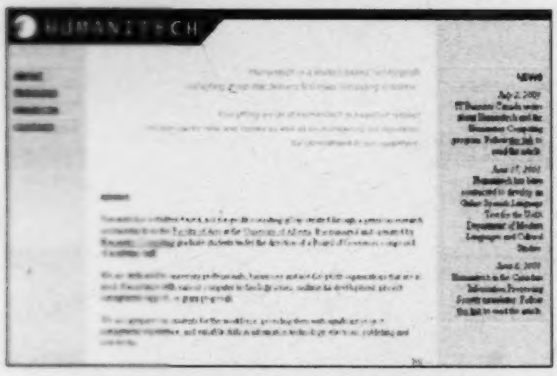

**Figure 3.13 Web Site C – Home Page**

The look-and-feel of Web site C fits the one described previously. All content is placed on a single page. Although anchor links are provided to help users move around the page, the need to scroll remains. The link color is blue because it is intended to look familiar to users (Nielsen, 1996). The entire interface is gray and white and the text is displayed using Times New Roman font. The only images used on this Web site are the branding elements and small grayscale pictures of the projects in the portfolio section.

The site looks balanced and symmetric, but very static. Figure 3.12 displays a sample screenshot of Web site C. Screenshots of the remaining pages within this site can be found in Appendix G.

### 3.3.2. Development of the Survey

In order to obtain the most useful and accurate information from my audience, I prepared a questionnaire, that any potential survey participant with access to the Internet could view and answer. To facilitate an accurate electronic research document, I defined a list of considerations that shaped the physical and technical structure of the survey (see Table 3.2). I kept in mind Schonlau's recommendation to list only a few or one question per screen and use graphics cautiously. According to Schonlau (2002), it is important to become aware of how respondents may interpret questions in light of accompanying graphics. The physical and technical considerations are listed in the following table.

**Table 3.2 Survey – Physical and Technical Considerations**

| Physical Considerations | Technical Considerations |
|---|---|
| • provide a brief description of the study and the purpose of the survey;<br>• provide clear instructions on how to complete the survey;<br>• divide the survey into three sections to address a simple structure;<br>  o Web site evaluation<br>  o Web site design and credibility<br>  o user profile<br>• address questions as first-person for more participatory approach. | • use plain colors and text to achieve simple design;<br>• display the content in a singe-scroll page;<br>• display an indication of progress of the survey;<br>• eliminate the use of screenshots of the evaluated Web sites;<br>• provide external links on every page opening each Web site in a separate browser window. |

I used open-ended and closed-ended questions to build the questionnaire. Open-ended questions enable participants to answer in their own words. Researchers must code answers obtained through asking such questions in order to interpret the response. Often, this may lead to difficulties in cataloguing and to misinterpretations of responses, but these types of questions usually provide rich contextual data (Nesbary, 2000). The examples of the open-ended questions used in my study are, "How does the overall use of color on a Web site affect whether or not you would trust the owner(s) of a Web site? Please explain." and "What do you consider to be the most valuable aspect of Web site A? Why?"

Closed-ended questions have a set number of answers the participants can choose from. These questions are easy to standardize and provide easy statistical data. However, the disadvantage is the difficulty in writing such questions, because the researcher must include all possible answers a participant could give for each questions (Fink, 1995). Closed-ended questions include multiple choice questions and sliding scale questions.

- multiple choice questions enable participants to pick the best answer, or answer from among all the possible options. However, the researcher must remember to include specific direction on how many answers the participants can select (Fink, 1995). The examples of multiple choice questions used in this study are, "What is your main purpose of using the Web? Please check all that apply." and "From your first impression of Web Site A, how would you describe it? Please check all that apply."
- sliding scale questions work well for finding out participants' feelings or attitudes about something. For many sliding scale questions, a Likert-style scale

is used to provide a series of statements to which participants can respond. If the scale includes degrees of agreement or disagreement, the question is called a 5-point Likert scale question (Fink, 1995). The examples of sliding scale questions used in this study are, "Please rate the effectiveness of Web site A's overall visual content [1-very ineffective; 2-somewhat ineffective; 3-neutral; 4-somewhat effective; 5-very effective]" and "I was able to find easily the following information about the organization (…) [1-strongly disagree; 2-disagree; 3-neutral; 4-agree; 5- strongly agree]."

The next step in the development of the survey was its technical implementation. I created an interactive Web page containing the survey form. The page also contained a flat PHP[25] file to store the results, which could subsequently be inserted into an Excel spreadsheet. The opening page of the Web survey included a 'welcome' screen that introduced my study and clearly stated the purpose of my research. It also displayed brief instructions on how to complete the survey, an estimate of how much time it would take, and a brief explanation of the ethical considerations as well as links to the three Web sites to be evaluated. Two options, one to continue completing the survey (by selecting the 'Yes' button) and one to end the task and exit the page (by selecting the 'No' button), were provided. For those who chose to continue, the questionnaire followed. Figure 3.13 shows the flowchart for the survey Web site.

The initial survey consisted of six sections in total. The questions were grouped into three parts: Web site evaluation survey (one for each of the three Web sites), Web

[25] PHP stands for the Hypertext Preprocessor. It is an open source, server-side, scripting language used to create dynamic Web pages.

site design and credibility survey, user profile survey (as recommended by Norlin (2002)) and a satisfaction survey.

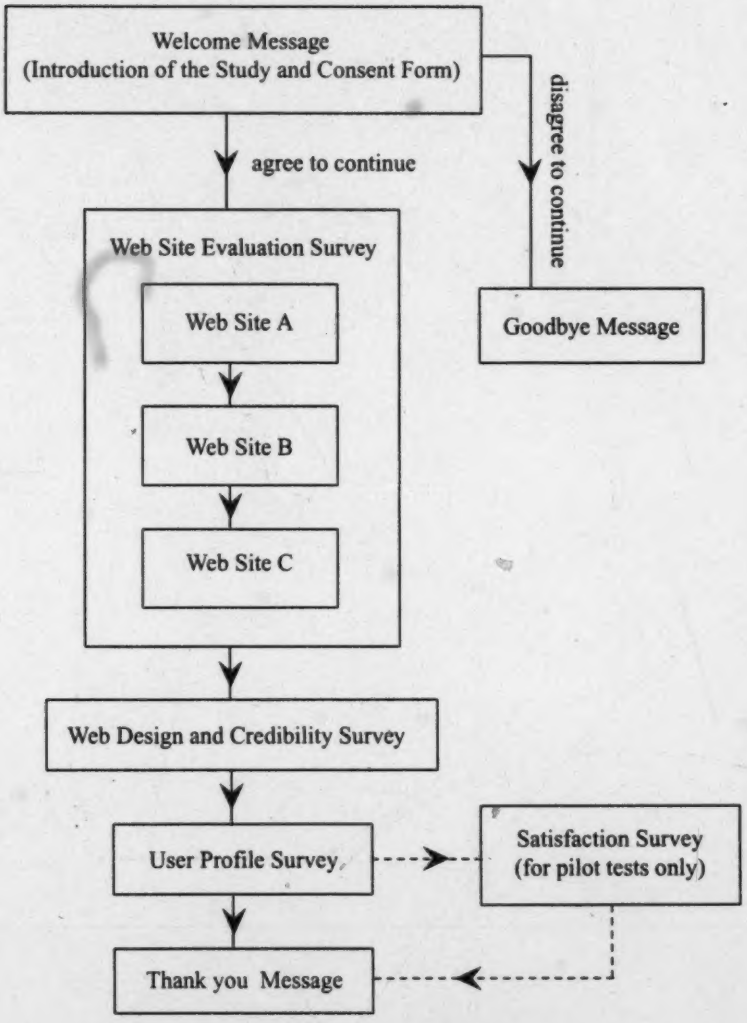


**Figure 3.14 Survey Web Site Flowchart**

### 3.3.3. Iterative Process

As in any survey, the way questions are phrased and/or displayed has a major influence on the answers provided by the participants. Biased, unclear, or ambiguous questions can result in misleading responses. In order to avoid this problem, I followed an iterative process[26] using two pilot groups (six and three participants) in order to determine the effectiveness of questions asked and the overall suitability of the methodology. Figure 3.14 illustrates the iterative process.

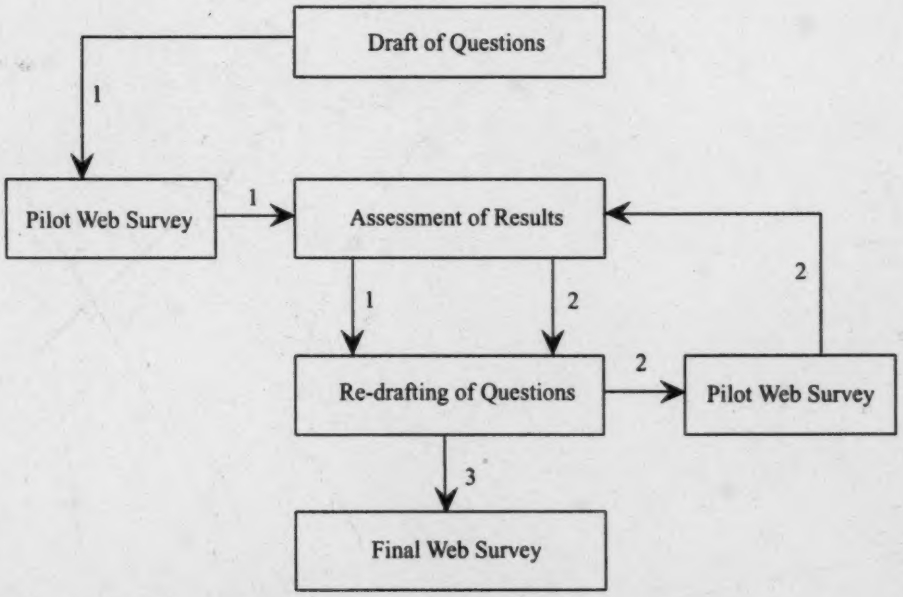


**Figure 3.15 Iterative Process for Designing Survey Questions**

[26] In an iterative process, questions are tested and modified and re-tested before being presented to the final test participants.

Originally, the survey home page displayed the complete URL[27] address of each of the three Web sites. Because of that, the participants were able to notice that the Web sites were labeled 'emotional', 'ethical' and 'rational', and some of them referred to these Web sites as such in their answers. This might have caused misleading responses; therefore, I modified this page for the second pilot test and did not to display the URL addresses. Instead, hidden links were used. Selected screenshots of the Web survey can be found in Appendix H. Next, I proceeded with modifying selected questions based on my analysis of responses obtained through the two pilot tests.

In the first question (Section I-III of the Web survey), the participants were asked about the tone of each Web site. Here, I was seeking mainly adjectives, descriptors similar to and/or same as the characteristics of the three modes of appeal introduced by Hanno Ehses and discussed in the previous chapter. I was also looking for possible uses of metaphors. I rephrased this question for the second pilot test, limiting the participants' response to one word or phrase in order obtain clearer answers. However, in the final survey, I used the original question ("What is the tone of this Web site?").

I adapted descriptors used in the second question (Section I-III of the Web survey) from Ehses' model. I supplemented each group of descriptors with additional words that seemed related to the ones Ehses used. Certain descriptors (i.e. 'interesting', 'modern', 'reliable') appeared under multiple appeals, because various appeals can generate similar reactions depending on the audience. In the initial pilot test, this question included twenty seven descriptors arranged in alphabetical order. I increased the number

[27] URL stands for Uniform Resource Locator. It is the World Wide Web address of a site on the Internet.

of the descriptors to forty in the second pilot test and kept this number for the final survey. A list of all questions included in the final survey can be found in Appendix I.

In the third question (Section I-III of the Web survey), the participants were asked to use a sliding scale to provide their responses. The next question asked to explain the participants' choice selected in question three. In order to make it more coherent, I asked the second pilot group directly if they thought each Web site appeared credible. Further, I added the three features from the original question three (images, color, layout) to the list of items included in question 7, Section IV of the survey, and asked how important were they to the credibility of Web sites.

After the first pilot test, I had doubts about including questions 5-8 (Section I-III of the Web Survey) in the final Web survey, since I did not consider them as being related in any way to visual appeal. However, it appears that all contributed to establishing what type of information the respondents noticed on the Web sites, and so all remained as part of the final survey. Responses to questions 11-13 (Section I-III of the Web survey) provided extensive information on the likes and dislikes of the respondents. Therefore, these questions remained unchanged.

In the section on credibility and Web design issues, the responses to the first two questions suggested to me that it would be beneficial also to ask directly if the overall look-and-feel of a Web site played a decisive role in trusting the owner(s) of the Web site. I added the new question in the final survey. In addition, I combined question one and two of this section, because both were similar in content. The remaining questions appeared to work well for both pilot groups. Only minor adjustments to the wording and the order of the questions were made. In the user profile section, the participants were

asked a series of question to determine their demographic background and familiarity with computers and the Web. All questions in this section remained mostly unchanged.

I concluded the pilot tests with a short satisfaction survey section. Data obtained through the satisfaction survey enabled me to determine the effectiveness of questions asked and the overall suitability of the methodology. When asked if they would prefer to complete a paper-based questionnaire, the respondents indicated their satisfaction with a Web-based survey. In general, the survey was considered to be easy, but long. The final survey consisted of sixty-one questions in total.

Because of the important disadvantages of Web surveys discussed previously, I decided not to distribute the survey universally. Instead, I met the participants in a computer lab, either as a group or individually, where I introduced my research study and invited them to participate in this study. I was present in the computer lab all the time while the participants answered questions in the Web survey.

### 3.3.4. Participants

It is important to try to understand the target audience of a Web site, because users visit Web sites in order to find information. A typical Web site of a typical student-run consulting business will be used by potential clients, existing staff members and students, academics, and more. Each of these groups is likely to have different expectations and needs, all of which should be aimed to satisfy (University of Essex Web Support Unit, 2003).

Because the target audience of the Humanitech Web site includes potential clients as well as existing and potential staff members and students, I invited all groups to participate in the survey. The participants in this study were divided into two categories:

- Two pilot groups (nine individuals in total). The purpose of the pilot groups was to determine the effectiveness of questions and the overall suitability of the methodology to be used in the actual testing sessions.
- Test group (thirty-five individuals), consisting of prospective clients and staff members of a student-run consulting business such as Humanitech. I used this group to perform the final testing.

I selected this specific audience on the basis that they were members of a group that was likely to participate in a Web site development process either through working for and/or seeking services of a student-run consulting business. I personally approached potential participants and asked them complete the Web survey.

### 3.3.5. Ethical Considerations

The study proposal and the survey were submitted to and subsequently approved by the University of Alberta, Faculty of Arts Ethics Review Board (REB), in accordance with the guidelines of the Tri-Council Policy Statement-Ethical Conduct for Research Involving Humans, and the "University of Alberta Standards for the Protection of Human Research Participants" (GFC Policy Manual, Section 66). In keeping with policies concerning the use of human subjects, I read an opening statement to all participants at the start of each testing session, outlining the purpose of the research, the voluntary nature of participation, the right to opt-out at any time, and the confidentiality of the information given. Next, I handed out to all participants the consent forms, which also explained the nature of the study and assured anonymity. After the participants reviewed and agreed to the terms and conditions outlined in the consent document, and signed the form, I asked them to proceed with completing the Web survey. At no time was there any

information collected that could have been used to identify any of the participants. A copy of the Ethics Proposal, the opening statement as sell as the consent form can be found in Appendix J.

# Chapter 4. Results

In this chapter, I present the results obtained from the Web survey. First, I describe the participant sample. After that, I present results obtained from the Web Site Evaluation sections of the survey. I discuss responses with reference to color, imagery, layout and credibility of each of the three Web sites. Next, I present data collected from the Credibility and Web Design Issues section of the survey. These results illustrate the participants' views about the significance of the overall look-and-feel, and specific design elements (color, imagery, layout) in judging the credibility of Web sites.

## 4.1. Participant Sample

Thirty five individuals were asked to complete the survey, which consisted of five sections with a total of sixty-one questions. The responses of three participants were not used in the results analysis because these participants did not answer the User Profile questions, and answered roughly 10% of the survey. Therefore, I consider the responses received from these participants of little value. In total, I have evaluated responses obtained from thirty-two participants and I have calculated most of the results out of thirty two (32=100%).

The thirty-two participant sample included seventeen females and fifteen males, most of who has significant experience with the use of computers and the Web. Over 50% have been using the Web for longer than seven years with more than 30% spending 10-20 hours on the Internet each week. While more than three-quarters of the participants had experience in building Web sites, only close to 47% indicated having their own Web page. The sample also included eleven potential clients of a student-run business and

twenty-one potential staff members. The most common age category for the respondents was 26-35 years. Table 4.1 illustrates some of the above figures.

**Table 4.1 Selected Results - User Profile Survey**

| Demographics | Overall Results |
|---|---|
| Gender | 17 females, 15 males |
| Individuals who had experience in developing Web sites | 25 |
| Individuals who had personal Web sites | 15 |
| Potential role in a student-run business | 11 clients, 21 staff members |

### 4.2. Web Site Evaluation Results

I observed that various participants spent different amounts of time browsing each of the three evaluated Web sites. Later, I discovered that some participants thought that each Web site, although representing the same organization and displaying the same menu items, contained different textual content. Data acquired through the Web site evaluation portion of the survey is divided into three sections, each presenting the results for each of the three Web sites.

#### 4.2.1. Web Site A – Emotional Appeal

Web site A was considered eye catching, but, although consistent, displayed poor usability. The technical and visual aspects of this Web site were questioned ("developed by individuals with some experience, but it still lacks a certain level of technical and aesthetic maturity"). While, some participants liked the graphics and layout, others thought that "it is esthetically pleasing, but lacks the seriousness to attract the kind of clientele that will make it a profitable venture".

The majority of respondents disliked the background-text color combination, saying it was "a bit too flashy" and "a bit hard on the eyes", although one mentioned that "manipulation with color is promising". As shown in Table 4.2, a significant number of respondents recommended changing the background color, for example to a darker or more subdued color, saying that the Web site was "appealing at first but the brightness becomes annoying" and that the yellow background made the site look like a "private page or a page dedicated to arts projects but not for consulting company". Some respondents indicated that the bright yellow background and white text decreased the site's professional appearance due to readability problems ("the low contrast between text and background make it hard to read, something a professional designer wouldn't (or shouldn't) do", "it is hard to read the white on yellow").

**Table 4.2 Results – Web Site A – Suggested Changes to the Overall Look-and-Feel**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| images | 11 | 6 | 5 | 36.6 | 40 | 33.3 |
| color | 17 | 9 | 8 | 56.7 | 60 | 53.3 |
| layout | 2 | 1 | 1 | 6.7 | 6.7 | 6.7 |
| other | 10 | 6 | 4 | 33.3 | 40 | 26.7 |
| no change | 0 | 0 | 0 | 0 | 0 | 0 |
| no responses | 2 | 2 | 0 | 6.3 | 11.8 | 0 |

Note: Calculation of responses to question 1.5 ("What would you suggest to change in the overall look-and-feel of Web site A?"

A few of all respondents were satisfied with the type of imagery used on Web site A. Some pointed out that "image grabs the viewer" and "graphic designs are neat and aesthetic" – all this being an effective representation of a "dynamic student company".

However, the majority expressed their dissatisfaction with the imagery ("pictures are too vivid, it is hard to concentrate on what you are trying to read with this big colorful square out of the corner of your eye", "the initial 'fuzzy' state of the photos makes the page look like it has poor image quality"). Eleven respondents recommended changing the images displayed on Web site A because they were unconvincing ("there must be something better than digitally enhanced muddy shoes and a dorky looking guy...", "crop the goofy grin off the nerd with the laptop, he doesn't come across as confidence inspiring"), irrelevant to the content ("pictures should correspond to each other and function as means of reflection of what Humanitech stands for") and too big.

Comments about the layout were limited. A couple of respondents criticized that "all the text is lined to the far right" which made the overall layout "to be a little bit sparse". Others suggested adding labels to the navigation buttons. In general, the overall visual content of this Web site received a positive reaction from roughly two-thirds of all respondents, as displayed in Table 4.3.

**Table 4.3 Results – Web Site A – Effectiveness of the Overall Visual Content**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | **Total** | **Females** | **Males** | **Total** | **Females** | **Males** |
| **very ineffective** | 2 | 1 | 1 | 6.5 | 6.3 | 6.7 |
| **somewhat ineffective** | 9 | 4 | 5 | 29 | 25 | 33.3 |
| **neutral** | 6 | 2 | 4 | 19.4 | 12.5 | 26.7 |
| **somewhat effective** | 10 | 5 | 5 | 32.3 | 31.3 | 33.3 |
| **very effective** | 5 | 3 | 2 | 16.1 | 18.8 | 13.3 |
| **no responses** | 1 | 1 | 0 | 3.1 | 5.9 | 0 |

Note: Calculation of responses to question 1.3 ("Please rate the effectiveness of Web site A overall visual content.")

Respondents had mixed opinions about the credibility of this Web site. Some stated that Web site A did not appear credible because of the limited contact information displayed on the page, "non-existent" navigation and poor readability. Others argued that the visual design was the key factor in the Web site's low credibility ("it is almost a joke", "trying a little too hard to be cool", "while the information appeared credible, the design with its problematic color choices would make me doubt").

Yet, as shown in Table 4.4, almost half of the respondents agreed that Web site A appeared credible. Some of the reasons given were that it displayed a copyright link, was affiliated with the University of Alberta and that it looked "like it cost a lot of money to produce". Respondents remarked that the Web site "gives a clear idea about who the designers are and who funds them and the reasons of the work" and that it was credible for a specific community ("looks very much like a Web site for a graphic design firm, as opposed to a Web site for a tech company or a programming firm (…) credible, but for a specific niche"). The overall tone was described as credible and trustworthy.

**Table 4.4 Results – Web Site A – Appearance of Credibility**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| yes | 14 | 7 | 7 | 46.7 | 46.7 | 46.7 |
| no | 9 | 4 | 5 | 30 | 26.7 | 33.3 |
| unclear response | 8 | 4 | 4 | 26.7 | 26.7 | 26.7 |
| no responses | 2 | 2 | 0 | 6.3 | 11.8 | 0 |

Note: Calculation of responses to question 1.14 ("Does this Web site appear credible? Please explain".)

The words that were used most frequently to describe it are "funky", "hip", "vibrant" and "vivid", which closely match the emotional mode of appeal model. A

number of respondents called the Web site "emotional" and "touchy-feely", while one person described it as "logical".

### 4.2.2. Web Site B – Ethical Appeal

Over 90% of all respondents agreed that Web site B appeared professionally designed because of "a consistency of visual elements", "a sense of balance in the design" and "a clearer picture of what Humanitech represented". The majority also agreed that this Web site appeared "business-like" and "business-oriented", and that the overall content was effective. The appearance was considered to conform to "enough corporate design conventions to look like just about every other computer consulting firm". Some respondents indicated that the "consistent appearance" and "to-the-point content" provided them with a "feeling of visiting the Web site of a well organized company", and gave the impression of a company that displays "an acceptable balance between business sense, technical skill and artistic ability".

**Table 4.5 Results – Web Site B – Suggested Changes to the Overall Look-and-Feel**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| images | 3 | 2 | 1 | 10.3 | 13.3 | 7.1 |
| color | 5 | 3 | 2 | 17.2 | 20 | 14.3 |
| layout | 1 | 0 | 1 | 3.4 | 0 | 7.1 |
| other | 10 | 7 | 3 | 34.5 | 46.7 | 21.4 |
| no change | 11 | 4 | 7 | 37.9 | 26.7 | 50 |
| no responses | 3 | 2 | 1 | 9.4 | 11.8 | 6.7 |

Note: Calculation of responses to question 2.5 ("What would you suggest to change in the overall look-and-feel of Web site B?")

Specific comments about the color, imagery and layout used in the design of Web site B were limited. A few of the respondents disliked the color combination, saying that it was "a little dark", "not at all cutting edge", "too corporate" and "looks like many other sites". Only three respondents criticized the photographs (see Table 4.5), suggesting that photos of real staff members would benefit the look-and-feel of the Web site more than having images that looked like stock photography. One respondent found the site as not professionally designed because of a shortage of "artistic pictures", and another indicated that the layout needed some changes because there was a "lot of wasted space on the left and right side of the page, which I think can be utilized". Over 90% respondents considered the navigation effective in some way. The majority of all respondents would not change anything in the look-and-feel of this Web site, and found the overall visual content effective, while merely 6% disagreed, as displayed in Table 4.6.

**Table 4.6 Results – Web Site B – Effectiveness of the Overall Visual Content**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| very ineffective | 1 | 1 | 0 | 3.1 | 5.9 | 0 |
| somewhat ineffective | 1 | 1 | 0 | 3.1 | 5.9 | 0 |
| neutral | 3 | 2 | 1 | 9.4 | 11.8 | 6.7 |
| somewhat effective | 19 | 10 | 9 | 59.4 | 58.8 | 60 |
| very effective | 8 | 4 | 4 | 25 | 23.5 | 26.7 |
| no responses | 0 | 0 | 0 | 0 | 0 | 0 |

Note: Calculation of responses to question 2.3 ("Please rate the effectiveness of Web site B overall visual content.")

Similarly to Web site A, the tone of Web site B appeared credible and trustworthy. Over 80% respondents believed the Web site looked credible. The "conservative design style" and "professional tone" were considered to provide "a sense

of calm and trust", while "business-like photos of the managers" added to the site's credibility. Also, the presence of external links to the University of Alberta and IT Business Canada was valued. Some respondents indicated that the overall look-and-feel of this site was "based upon prior examples of professional business sites" and "in line with the design choices of many other sites, both academic and commercial".

**Table 4.7 Results – Web Site B – Appearance of Credibility**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | **Total** | **Females** | **Males** | **Total** | **Females** | **Males** |
| **yes** | 26 | 13 | 13 | 86.7 | 86.7 | 86.7 |
| **no** | 0 | 0 | 0 | 0 | 0 | 0 |
| **unclear response** | 5 | 3 | 2 | 16.7 | 20 | 13.3 |
| **no responses** | 2 | 2 | 0 | 6.3 | 11.8 | 0 |

Note: Calculation of responses to question 2.14 ("Does this Web site appear credible? Please explain.")

A small group of respondents did not provide definite answers saying, for example, that the site was "too predictable" and that "credibility could be gauged more on the appearance of the individuals profiled in the 'Contact' section". Some were unsure if the site appeared credible because of the written content ("this site appears to be professionally designed; however, some of the text might suggest otherwise"). Also, respondents expressed an interest in seeing more links to the University of Alberta pages in order to increase the site's credibility further ("yes, but if there are some links to the home page of uofa, that will be much more authoritative"). The percentage breakdown of the responses is illustrated in Table 4.7.

The word that was used most frequently to describe this Web site was "professional", in addition to "corporate", "tasteful" and "balanced". While the design of

Web site B was modeled primarily on the ethical mode of appeal, some respondents described the site as "intellectual" and "logical", which would suggest that the site displayed some qualities of the rational mode of appeal.

### 4.2.3. Web Site C – Logical Appeal

Web site C was considered to look like it was "thrown together as though someone built it with no attention" and "as an afterthought". Only a couple of respondents agreed the Web site was professionally designed, mainly because the site "implements different jumps within one page and content is organized well". Less than a quarter of all respondents did not provide clear answers ("can't tell", "somehow"), or commented that the site could look professional depending on its genre ("this is a difficult question because which professional designed it? Looks like a language professional designed it").

Over 70% of all respondents considered Web site C as unprofessional. The problem of the overall visual content (see Table 4.8) of the site was brought up repeatedly. For the most part, respondents did not like the overall look-and-feel of this site and suggested that "the Web site should have more visual appealing" and "needs to be modernized and to be more colorful and dynamic". One commented, "(it) appears to be designed by Jakob Nielsen. The site suffers from a complete lack of visual appeal". Respondents criticized the "tasteless combination of color" and "use of default link color". The majority has agreed that Web site C needed more color. One respondent noted, "Colour! Excitement! Life! All these qualities are missing, and it makes using the Web page difficult and tedious". Adding more color "to give the site more warmth and make the viewer more welcome" was recommended. One third of the respondents agreed

that also adding more pictures would significantly improve the quality of this Web site. Other recommendations included placing "better examples of work" in the portfolio section and changing the fonts.

Web site C was considered ineffective not only because of "lousy visuals", and "tasteless combination of color, use of default link color, poor graphics and usability", but also because of the physical length of the page that required constant scrolling. This was a major concern. The majority of respondents recommended changing the "poor layout". It was suggested to break up the page into a number of shorter pages. Roughly 30% respondents considered the navigation effective in some way.

**Table 4.8 Results – Web Site C – Effectiveness of the Overall Visual Content**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| very ineffective | 13 | 7 | 6 | 40.6 | 41.2 | 40 |
| somewhat ineffective | 9 | 4 | 5 | 28.1 | 23.5 | 33.3 |
| neutral | 6 | 2 | 4 | 18.8 | 11.8 | 26.7 |
| somewhat effective | 3 | 2 | 1 | 9.4 | 11.8 | 6.7 |
| very effective | 1 | 1 | 0 | 3.1 | 5.9 | 0 |
| no responses | 0 | 0 | 0 | 0 | 0 | 0 |

Note: Calculation of responses to question 3.3 ("Please rate the effectiveness of Web site C overall visual content.")

Roughly half of all respondents agreed that Web site C did not appear credible. It was suggested that the Web site looked "thrown together at the last minute" and appeared "far too amateurish to be considered credible". The overall design was considered "outdated" and "boring" and the technical development of the Web site was also criticized ("suggests a rudimentary knowledge of HTML and stylesheets", "creators of

this site appear to be quite out of touch with modern Web design and development techniques"). A couple of responses suggested that the Web site looked "like a student project" or made by a group of students, perhaps "operated out of someone's basement", which was believed to reduce the business' credibility as a professional organization.

Those who found Web site C credible (one-third of all respondents) listed "simple structure, but a comprehensive content" and "serious, conservative overall tone" as its strongest aspects. It was suggested that the Web site looked credible because "it follows useful format of higher educational Web sites which makes its appearance useful and recognizable". Some respondents noted that is was "credible in term of connection to the university and sponsor, and news about it in media, but not credible in term of the Web design professionalism" and "the content delivered makes it seem credible, however esthetically I feel that it is not as credible". It was also mentioned that this Web site was "more informative than credible" as directly compared to Web site A and B, and that "the differences in visuals make a big difference". A detailed breakdown of responses is displayed in Table 4.9.

**Table 4.9 Results – Web Site C – Appearance of Credibility**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | **Total** | **Females** | **Males** | **Total** | **Females** | **Males** |
| **yes** | 10 | 7 | 3 | 33.3 | 43.8 | 21.4 |
| **no** | 15 | 5 | 10 | 50 | 31.2 | 71.4 |
| **unclear response** | 6 | 5 | 1 | 20 | 31.2 | 7.1 |
| **no response** | 2 | 1 | 1 | 3.3 | 6.3 | 7.1 |

Note: Calculation of responses to question 3.14 ("Does this Web site appear credible? Please explain.")

The choice of words used in the responses to describe the tone of Web site C matched the rational mode of appeal model ("boring", "informative", "plain", old"). However, some respondents described it as "conservative" and "traditional", which would suggest that this Web site also displayed some characteristics of the ethical mode of appeal.

### 4.3. Web Site Design and Credibility Results

In this portion of the survey, participants were asked to provide their general opinions and preferences about issues related to Web site design and credibility. The section started with a request to identify what made the participants trust the information found on the Web. As displayed in Table 4.10, site design was the key factor, followed by site content.

A number of respondents provided vague or unique (mentioned once only) comments (those were grouped under the 'other' category). For example, one respondent suggested that the presentation of information on a Web site does not affect its trustworthiness, but a poor design suggests that a business does not have a great expertise in the area of Web design. Another mentioned that s/he usually compares Web sites to other related sources on the Web and in print. Somebody else indicated paying attention to whether or not the information presented on the Web was "coming from an established company with a physical presence". Two respondents did not trust any information on the Web, one of whom added that only government sites were credible.

When asked exclusively about the overall look-and-feel of a Web site, and if it influenced the participants' level of trust, over half of all respondents said yes, while less than 20% disagreed, as displayed in Table 4.11.

**Table 4.10 Results – Web Site Elements Affecting Users' Trust**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| site design | 13 | 9 | 4 | 41.9 | 56.3 | 26.7 |
| site content | 11 | 6 | 5 | 35.5 | 37.5 | 33.3 |
| external relations | 7 | 3 | 4 | 22.6 | 18.8 | 26.7 |
| other | 10 | 6 | 4 | 32.3 | 37.5 | 26.7 |
| none | 2 | 0 | 2 | 6.5 | 0 | 13.3 |
| no response | 1 | 1 | 0 | 3.1 | 5.9 | 0 |

Note: Calculation of responses to question 4.1 ("What makes you trust the information you find on the Web? Please explain.") The first four categories can be described as follows: 1) site design – includes any responses that discussed (or used the word/phrase) visual components, color, tone, design, information presentation, layout, navigation, and 'professional appearance'; 2) site content – includes any mention of information about credentials, contact information, services provided, and portfolio content; 3) external relations – includes any responses that mentioned links to other organizations and sponsors; 4) other – includes vague or unique (single mention) responses.

Some of those who disagreed pointed out that the look-and-feel of a business Web site might not always reflect the proper image of a business itself. Those who agreed noted that a Web site is an extension of the physical business image and that it shows how well a business is organized and how well it approaches its clients. The look-and-feel was considered especially important for businesses that offer Web design services. One respondent said that a Web site was like a business card, and another stated that it presented "the credibility of the organization". A number of respondents agreed that it was critical for a business to invest money and time into designing a professional and attractive business Web site, and some did not generally trust sites that looked home-made. Another respondent added that the presence of credible external links and credits as well as current news section add to a trustworthy image of a business.

**Table 4.11 Results – The Effect of the Look-and-Feel of a Web Site on Its Credibility**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| yes | 21 | 10 | 11 | 65.6 | 58.8 | 73.3 |
| no | 6 | 5 | 1 | 18.8 | 29.4 | 6.7 |
| unclear response | 5 | 2 | 3 | 15.6 | 11.8 | 20 |
| no response | 0 | 0 | 0 | 0 | 0 | 0 |

Note: Calculation of responses to question 4.3 ("Does the overall look-and-feel of a Web site play a decisive role in you trusting the owners of the Web site? Please explain.")

### 4.3.1. Color

The same number of respondents, who felt that the overall look-and-feel of a Web site plays a decisive role in their trusting the owner(s) of the Web site, agreed that color was also critical (as displayed in Table 4.12). It was indicated that color draws the user's attention and affects the mood and tone of a Web site ("color can affect mood, tone -- the usual associations with color apply here too, "… it's the colour that would draw me in"). Some pointed out that flashy colors made them trust the company less and that color in general should be used conservatively. Overall, the majority agreed that it was essential for a company to use a consistent color scheme that reflects the nature of the business ("… the most important factor is the coordination of all the colors", "the consistence of the color makes me trusting the owner..."). However, it was also noted that the choice of color often depends on a personal preference, as a couple of the respondents indicated ("… I am more attracted by cool colours and professional layout. Someone else may be attracted to the entire opposite end of the spectrum.").

Over 23 % of all respondents said that color on a Web site either did not affect their trust level ("does not affect credibility, it affects the perception of the

professionalism level of a designer. I do not relate trust to color", "color and trust for me are 2 separate things") or should not affect trust issues at all ("…while colour is importantly aesthetically, I'm not sure it influences trust", "… might hate the color but maybe the owner is doing a good job", "I wouldn't allow color to color my opinion about trustworthiness").

**Table 4.12 Results – The Effect of the Use of Color on a Web Site on Its Credibility**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| yes | 21 | 11 | 9 | 70 | 68.8 | 64.3 |
| no | 7 | 3 | 4 | 23.3 | 18.8 | 28.6 |
| undecided | 3 | 2 | 1 | 10 | 12.5 | 7.1 |
| no response | 2 | 1 | 1 | 6.3 | 5.9 | 6.7 |

Note: Calculation of responses to question 4.4 ("How does the overall use of color on the Web site affect whether or not you would trust the owner(s) of a Web site? Please explain.")

### 4.3.2. Imagery

Table 4.13 shows that more than 80% of all respondents agreed that the overall use of images on a Web site affects whether or not they would trust the owner(s) of the Web site. Some indicated that images can make a Web site convincing and trustworthy ("images make me feel that there are people behind the screen…", "images that capture emotions (…) definitely build a level of trust"). Others noted that images can manipulate trust and can mask the true intentions of the authors. A number of respondents wished to see photos of company members ("personal photo makes me more trust the owner", "can add a bit to credibility to the site and business in focus. If company owners do not hide their appearance from public, it suggests that have nothing to hide"). Some respondents pointed out that a Web site without images quickly becomes boring, while an overload of

images detracts from other information and might be irritating. It was also mentioned that if images were the only substance of a Web site then s/he would not trust the Web site.

**Table 4.13 Results – The Effect of the Use of Images on a Web Site on Its Credibility**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| yes | 25 | 12 | 13 | 83.3 | 80 | 86.7 |
| no | 3 | 1 | 2 | 10 | 6.7 | 13.3 |
| undecided | 1 | 0 | 1 | 3.3 | 0 | 6.7 |
| no response | 2 | 2 | 0 | 6.3 | 11.8 | 0 |

Note: Calculation of responses to question 4.5 (How does the overall use of images on the Web site affect whether or not you would trust the owner(s) of a Web site? Please explain.)

Only three respondents said that the overall use of images on a Web site did not play a decisive role in trust issues ("…image does not play a decisive role in e-commerce", "I tend to tune out images unless they are particularly striking. They rarely add any valuable information about the material on the site"). In general, all agreed that images used on a Web site should be of professional quality and always appropriate for the nature of the business and for the content of the site, and not used for its own sake.

### 4.3.3. Layout

Respondents did not ignore the importance of layout. Over 80% of all respondents agreed that the overall layout of a Web site matters when it comes to trusting the owner(s) of the site, as shown in Table 4.14. It was indicated that the most important task for users on the Web is to find all information in an easy and effective manner, and that a clear and appealing layout is critical ("clean and uncluttered and easy to navigate", "…should be appealing and interesting", "…should be clear and effective"). A number of respondents noted that an effective layout of a business Web site shows how the business

is laid out itself, how it works and what it considers important ("gives an idea of the tone of the company and what they consider important", "reflects a business philosophy or approach"). It was also noted that if a business is able to provide a useful user experience through an effective layout of its Web site, then it greatly benefits the credibility of the business ("if the layout is good, it is a good example of the owner's professional credibility"). A couple of respondents said that layout of a Web site does not play any significant role in trust issues ("layout design speaks about designer's level of professionalism. I do not relate it to credibility").

**Table 4.14 Results - The Effect of the Overall Layout of a Web Site on Its Credibility**

| | Number | | | % Percentage | | |
|---|---|---|---|---|---|---|
| | Total | Females | Males | Total | Females | Males |
| yes | 25 | 12 | 13 | 86.2 | 80 | 92.9 |
| no | 1 | - | 1 | 3.4 | - | 7.1 |
| undecided | 2 | 2 | - | 6.8 | 13.3 | - |
| no response | 3 | 2 | 1 | 9.4 | 11.8 | 6.7 |

Note: Calculation of responses to question 4.6 ("How does the overall use of layout on the Web site affect whether or not y would trust the owner(s) of a Web site? Please explain.")

Responses to previous questions show that the look-and-feel, color, imagery and layout affect the respondents' trust (the perception of credibility); yet, it appears that navigation is critical. In the final question of the survey, participants were asked to indicate, using a 5-point Likert-style scale, how important various features of a Web site were to its credibility. Navigation was ranked the highest. Readability was considered the second most important feature. Next, the written content and layout were selected, followed by images, color and interactivity (in that order). Figure 4.1 displays the results.

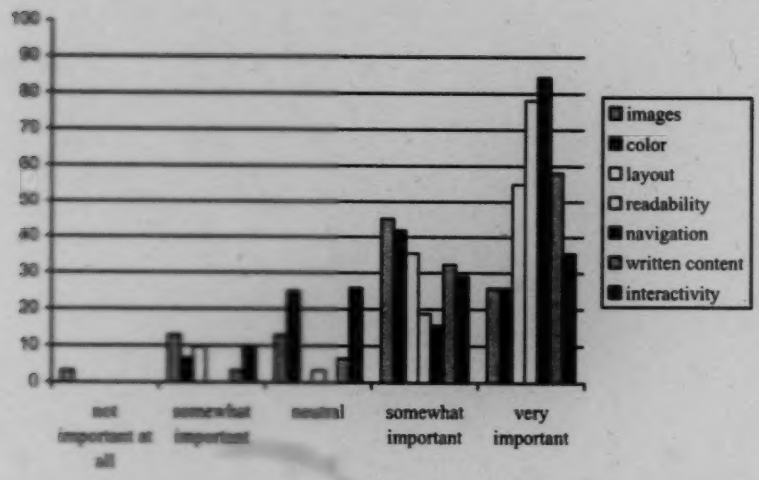


**Figure 4.1 Importance rating of selected elements on a Web site (question 4.7)**

## Chapter 5. Discussion and Conclusions

The visual design of Web sites is subject to the same fluctuations and progression as any cultural artifact that depends on human perception, just as fashion, music, film, or news are subject to change with time and technology. As such, it is important to note that this study should be considered in the context of attitudes and technologies that exist at the time this research was performed.

The objective of this study was to explore, through the application of rhetorical modes of appeal, the effect of visual appeal on the perception of the credibility of a Web site for a student-run consulting business. I reviewed various literatures – credibility studies, visual communication design, Web design, marketing, and rhetoric – to identify the theoretical background for this study. I designed three Web interfaces. I manipulated selected design elements, color, imagery and layout, to provide each of the three Web sites with a distinctive look-and-feel, each based on one of logos, ethos, and pathos. I undertook an extensive Web survey development process to refine the structure and content of the survey. The process consisted of conducting two pilot tests. Then I carried out a Web survey with thirty-five participants. Based on the results obtained, I drew conclusions. It appeared that people give more credibility to Web sites with high quality visuals; therefore, visual elements of any Web site, run not only by a student consulting business, but also by any organization or individual, should be selected carefully in order to represent a credible image. However, I did not find a clear recipe for what constitutes 'credible enough' for any Web sites, because such perceptions are based on a personal taste and preference. I was also able to conclude that looking at Web sites through visual rhetoric is not the only approach of studying the credibility of Web sites. Visual rhetoric

and modes of appeal can simply serve as one of many approaches for assisting designers in creating effective and credible Web sites, especially in terms of making design choices for the overall look-and-feel. In terms of research procedures, I identified limitations of the study that were defined primarily by the size of the participant sample, the genre of the Web sites, and the Web-based survey. Finally, I identified areas for further research and recommended conducting joint and extensive research in the areas of Web credibility, usability and visual rhetoric.

### 5.1. Discussion

The definition of 'credibility' for a particular Web site depends on what an organization expects it to accomplish. As discussed in the literature review, there are four types of credibility – experienced, presumed, reputed and surface (Fogg, 2003). In this study, I looked primarily at the issue of surface credibility. For a Web site run by a student consulting business, bright colors and funny images might not be part of the site's goal in terms of its look-and-feel.[28] However, a hip-and-happy look may be very important for an entertainment Web site. On the other hand, looking up specific facts might be the top priority for an academic Web site and not as crucial for a consulting firm.

This study allowed me to review various literatures to examine if there is a general agreement on the properties of credible Web sites. A number of researchers agreed that visual appeal may influence the perception of the credibility on the World Wide Web (Fleming, 1998; Fogg, 2003; Karvonen & Parkkinen, 2001). Credibility and trust are critical for business Web sites, because of their implications for customer

[28] Often, this would be determined by the mission and goals of the business itself (and also the objectives of the Web site) and by the target audience.

loyalty. The type and the display of information on a Web site should represent a professional image of any business (Damron & Gillette, 2002). Visually appealing Web sites may provide users with good first impressions (Fleming, 1998; Lif, 1998). Therefore, the perception of the credibility of the business itself may be influenced, especially if the potential customer is unfamiliar with its services and reputation.

Based on the material presented in the literature review (see Chapter One) and the design recommendations (see Appendix A-D), I was unable to produce a common set of terms since there is no definite recipe for what makes a Web site credible (and also effective). As I have mentioned previously in this thesis, there are only guidelines and recommendations of the applied practice that may be useful for Web designers. I did not attempt to determine fully what constitutes 'good enough' or 'credible enough' or 'effective enough' for any Web site, because such perceptions are often based on a personal taste and preference of the users (including designers).

This study also allowed me to test three alternate Web interfaces in which look-and-feel was influenced by the rhetorical modes of appeal, in order to draw some conclusions. Some of the findings of my study correspond to the recommendations presented in the available literature. Although I did not ask the survey participants a specific question about a link between visual appeal and the credibility of Web sites, and about the significance of visual appeal for the credibility of Web sites, a number of responses suggested that, indeed, such a link exists. Several participants mentioned that they liked/disliked what they saw on each of the three Web sites (as presented in Chapter Four). They discussed the visual elements (color, imagery and layout) and described how the arrangements and use of those elements affected their first impression (and sometimes

the only impression) of the site; thus, whether each Web site had visual appeal or not, and whether it had an impact on the Web site credibility. The study not only supported the idea that, often, visual appeal is a prominent factor in credibility assessment (as Fogg's research suggested) of a Web site run by a student consulting business, but also demonstrated that visual appeal does affect the perception of the credibility.

There are various elements that may influence the perception of the credibility of a Web site; for example, visual elements (such as color, imagery, layout), written content, navigation, branding, the URL, the reputation of the Web site owner (in case of known and establish parties), etc. In this study, I focused specifically on the use of visual elements. The use of color is one example. I found that participants considered Web sites with color as more 'visually pleasing' than Web sites without color. A number of participants agreed that color shapes the mood and the look-and-feel of a Web site. For example, based on the survey responses, the credibility of Web site C suffered because of its overall lack of color. Generally, participants preferred pastels rather than bright or dark colors for Web site backgrounds, but noted that color depends on a personal preference. There was a common agreement that color on a Web site should be used conservatively, and that the color scheme should be consistent and reflect the true nature of the business.

Imagery may also affect the perception of Web site credibility. Participants in this study agreed that Web sites with images seem more visually interesting. However, they pointed out that the use of imagery can be manipulative, because it may often mask the true intentions of the Web site owners; it can either increase or decrease the credibility of a Web site. Too many or too big images and/or their low quality were not considered

beneficial to a business images projected through a Web site. On the whole, participants agreed that a balance between relevant images and text was important in creating effective and credible Web sites.

Based on the literature review and the results of this study, it appears that some Gestalt principles for organizing elements in a visual field play an important role with respect to layout of Web sites. Users usually have general expectations regarding the location of navigation[29] and other elements on a Web site. For example, users often do not analyze each separate element on a page; instead, they decode frequently occurring meaningful patterns in the layout of Web sites and become aware of the object's location on the screen (Nygren, Allar & Lind, 1996); Web sites may quickly become familiar or unfamiliar to users. These expectations can affect credibility assessment because, through visual perception people create a certain image of a Web site (and its owner) in their minds, and depending on the quality of this image and its visual attractiveness, the perception of the credibility of the Web site (and its owner) is impacted. In general, the study found that balanced and uncluttered layout of a Web site as well as clear organization of content[30] enable users to move comfortably within the site.

A number of approaches borrowed from rhetoric and based on the modes of appeal (emotional, ethical and rational) have been used in print design[31]. Web designers can also use similar methods in designing effective and credible Web sites. The review of

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[29] Although the results of this study clearly show that navigation is also very important (was ranked the highest in question 4.7) in addition to the overall visual appeal to the credibility of Web sites, the discussion of navigation would require extensive research beyond the scope of this study.

[30] A number of respondents agreed that the organization of content is usually indicative of the way a business itself is organized; for example, if a Web site displays a clear layout of its content and visual elements, then it may also reflect the clarity of the business structure and objectives.

[31] For discussion of rhetorical modes of appeal applied in print design, see Hanno Ehses and Ellen Lupton's *Rhetorical handbook: An illustrated manual for graphic designers*. Halifax: Nova Scotia College of Art and Design Press, 1988.

the literature and the study results show that designers can create credible-looking Web sites, defining a particular visual style, manipulating specific visual elements (such as color and/or layout), and selecting the choice of visual imagery to achieve a specific communicative goal and bring on desired emotions. The method I used in this study might be helpful in forming a basis or providing a suggestion for a practical approach that designers can use in creating effective and credible Web sites. This method presents the Web design community with a broad overview of rhetorical modes of appeal, as well as ideas and examples of their practical use in designing Web sites. By exploring various examples of design styles and properties (e.g. different color schemes or layout types, etc.), designers may be able to compile a visual inventory of Web sites similar to the examples used in this study. Then, the content of the inventory can serve the designers in selecting the design choices for a dominant appeal most suitable for a specific target audience and the Web site genre, in order to create an effective and credible Web site.

This method does not provide any definite models of how a logical, ethical, or emotional Web site should look because none of the Web sites was designed as exclusively logical, ethical, or emotional. Each displayed many mixed qualities, with one dominant mode of appeal. For example, I designed Web site B as predominantly ethical, modeled on corporate Web sites; yet, results of the study showed that is also displayed some characteristics of the logical mode of appeal (as mentioned in the previous chapter). As noted in the literature review, researchers suggested that a combination of some or all of the three appeals, usually emphasizing one over the other, provides the best effect.

## 5.2. Limitations of the Study

The findings of this study suggest how businesses, organizations and individuals may establish online credibility between themselves and their audience through a Web site. It is important, however, to note that the size of participant sample used in this study might not be large enough to draw any statistically accurate conclusions. It was never my intention to perform such an exercise rather to perform an exploratory study drawing casual conclusions from answers given by participants in the light of studies pertaining to credibility and Web design.

Every research method has its own weaknesses and limitations (Fogg, 2003). The limitations for this study were primarily defined by the size of the participant sample, the genre of the three Web sites, the structure of the survey and the nature of the research questions and also by the medium (the Web) that was used to conduct the survey, and present and evaluate the three Web sites.

First, it is difficult to examine the effect of visual appeal on the perception of the credibility of a Web site, because something that is judged as reliable, trustworthy and/or professional by one observer can be contradicted by another (Andersen, 1978). People from divergent cultural and/or educational backgrounds may have different expectations about how a credible Web site would look. Also, individuals with different Web experience and/or with different goals for visiting a site (information search, entertainment, etc.) may have distinctive views about what makes a Web site credible. In particular, the small size of the participant sample (thirty-five) limited the number and the range of responses.

A second limitation of this study is that the examples which were tested represent only a single genre of Web sites, a student-run consulting business that offers information technology and multimedia design services. An enhancement to this study would be to examine other types of Web sites (e.g. university sites, online stores, health-related sites, non-for-profit organizations' sites, etc.) in order to learn about the perception of the credibility across a broad range of Web sites.

Also, the order in which the participants might have viewed the Web sites becomes a limitation. The survey home page displayed links to the locations where each Web site was stored (see Figure H.1). I did not obtain any information about the order the participants accessed the Web sites. It is likely that the participants visited the Web sites in the order the links appeared on the home page. Depending on which Web site the participants visited first, might have affected (positively or negatively) their responses to the Web site that followed. Offering random access to the Web sites might have provided more diverse range of responses.

Another restriction comes from the survey itself. Surveys do not always capture how people feel or behave (Fogg et al., 2000). In this study, the participants were asked to complete the survey in one sitting, in my presence[32]. While this was a limit, it presented a positive situation as well, in that I was able to watch how the participants moved from question to questions within the survey page and how quickly the responses were submitted. The survey itself was lengthy (sixty-one questions) and a number of participants might have become tired by the end of it, which could result in rushed and vague answers. I could have reduced the number of questions, eliminating some

[32] I decided not to distribute the survey universally for various reasons, which I have discussed in Chapter Three.

questions and grouping others. For example, I could have combined questions one and two in the Web Site Evaluation sections into a single question, because these two were similar in content and provided similar responses. Also, the participants were able to select unlimited number of descriptors from among forty choices in question two (see Appendix I to review this question). By restricting the number of choices, I might have collected more clear-cut responses.

The next restriction with regards to the survey is that the participants were not able to navigate comfortably to review responses before submitting them. The only way of navigating back to see previous questions was to use the browsers 'Back' button, which means that at a certain point a participants would have to make between one and sixty clicks to navigate back to the desired question. Nor were the participants able to save their responses before submitting the complete survey.

Another limitation that may be critical in this study is that there was no comparison done between the groups who evaluated the Web sites using the Web survey, and individuals who could have evaluated the Web sites using an alternate testing format; for example, person-to-person interviews, or group discussions. Often, person-to-person interaction prompts other questions that researchers might not have thought of when creating the written questionnaires, while live debates and the ability to carry on a dialog can simulate further creative ideas and concepts related to the topic being studied.

### 5.3. Suggestions for Further Research

Fogg (2003) noted that both academia and industry still lack a deep understanding of Web credibility, and that many research and design explorations need to be done in order to generate a higher level of awareness. From the results of this study it is also clear

that further research and assessments should be performed, because Web presence is important for many businesses, organizations and individuals and also because users need to learn how to recognize credible Web sites. Through additional studies, scholars may be able to research further people's perception of the credibility of Web sites, and also assist designers, providing new suggestions for guidelines for the creation of highly credible Web sites.

There are a number of directions for research in this area especially with regards to credibility and usability. A balance between usability and credibility is an important element of Web assessment. It is possible that a visually appealing Web site may appear credible to a user at first[33], but as soon as the user starts moving from page to page (or is not able to) and finds the site difficult to use, the user's perception of the credibility of the Web site suffers. How easy a Web site is to use may possibly impact the perception of the credibility of the Web site; therefore, designers should assure that Web sites are usable to facilitate accessing information (Nielsen, 1997). Having a usability survey added to this study would be advantageous. Therefore, integrating usability and credibility studies into the same framework may benefit further research.

Navigation is a fundamental element of Web sites because users want to find the information for which they are looking, navigating from one page to the other quickly. In this study, the responses to a selected question (as displayed in Figure 4.1) show that navigation was ranked the most important element that affected the credibility of Web sites. Thus, it becomes critical to combine Web credibility research with navigation

[33] A number of participants in this study noted that poor usability of some of the evaluated Web sites impacted whether they perceived the Web site as credible or not.

studies; for example, to study how various navigation menu types[34] impact the perception of the credibility of a Web site.

For practical reasons, this study dealt with only one factor – visual appeal – that influences the perception of the credibility of Web sites through the manipulation of such visual design elements as color, imagery and layout. It would be worth while to focus only on the effect of a selected single element of visual design on the perception of the credibility; for example, imagery. The choice of imagery, when manipulated through the visual rhetoric approach, can provide endless possibilities in Web design. Also, a similar study with an extra testing phase would be useful. This extra testing phase would include a re-design process of the three tested Web sites (or design of a single brand new Web site). The new design(s) would be based on the suggestions provided in responses to the Web survey. A part of this phase would also be another, final test (in the form of Web survey, etc.)

I purposely excluded from this study other factors, such as written content, branding, technology, etc. It would be important to move a step forward and investigate the factors left out of this study. A comprehensive study looking at the specifics of preparing text for business Web sites, especially with the application of rhetoric, would be beneficial in order to explore how written content affects the perception of the credibility of such Web sites.

Also, the examples of the Web sites tested represented only a 'snap-shot' in time and in genre. A study incorporating a greater number and a wide range of Web sites would be valuable to provide us with an extended picture of the perception of the

[34] There are several styles of navigation menus currently in use on the Web; for example, horizontal, vertical, roll-overs, text-based, image-based, drop down, etc.

credibility of Web sites within a larger scale. Web development technologies as well as Web design trends continue to change. And so, Web user requirements may not always remain the same. Therefore, an extended study to monitor this change would be valuable.

Future research in this area needs to have a much larger sample to obtain more extensive data. It is, therefore, to take special considerations to participant's recruitment. Also, additional studies should be done to further determine the characteristics of the rhetorical modes of appeal. In this study, I set the criteria based on my research of the available literature as well as personal observations derived from Web site critiques. A study that would involve end-users in the initial process of establishing an extensive inventory for each of the modes of appeal as seen and understood by the end user should also be conducted.

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## Appendix A: Recommendations for an Effective Use of Color

- Blue, set at the right level of saturation and brightness, can be a very effective as a background color (Boyle, 1997).
- Pastels and soft grays are the best backdrop colors (McFarland, 1995).
- A good way to avoid color distraction is to use colors found in nature, particularly toward the lighter side, such as grays, blues and yellows of sky and shadow. Nature's colors are familiar and have a widely accepted harmony (Tufte, 1992).
- The most preferred surface colors for adults are blue, red, and green. Generally ranked lowest are violet, orange, and yellow (Bradshaw, 1998).
- Blue makes people feel cooler, calmer, and more in control (Schaeffer & Bateman, 1996).
- Use a consistent color scheme for the entire document/presentation. If you decide to use a different color scheme for each subject area within the presentation, use complementary colors (McFarland, 1995).
- 'Cool' colors like blue and green suggest soothing environment to the user (Schaeffer & Bateman, 1996).
- Avoid bright, solid-colored backgrounds, like reds, yellows, oranges, or greens. These can quickly become very tiring for the user (Parker, 1997).
- Too much color can be distracting, and has been shown to degrade performance on memory and recognition tasks (Tufte, 1992).
- Be wary of cultural context associations with color. For example green is often associated with health, youth, and nature, but in France it is associated with criminals (Thorell & Smith, 1990 cited in Schaeffer & Bateman, 1996).

- The color red is said to make one feel warmer, to arouse one to action, to accelerate the passage of time, and to increase one's strength. On the other hand, blue is said to make one feel cooler, calmer, and more in control (Schaeffer and Bateman, 1996)
- Use higher levels of brightness for distinguishing colors when designing for younger audiences (Lee & Boling1996).
- Use three to seven colors on a single screen because that is how many colors an average user is able to remember (Misanchuk & Schwier 1995).
- White symbolizes purity and sterility, but death in many eastern countries. Black can be used to represent death and fear, or power and elegance. Yellow can portray hope and optimism or dishonesty and cowardice. Orange can represent energy and balance (Oliver, 2002).

## Appendix B: Recommendations for an Effective Use of Imagery

- Images should be used to attract the viewer's attention (Tufte, 1985), provide relevant information (Sontag, 1992), and provoke emotions (Dormann, 2002).
- Photographs appear more trustworthy than drawings or text, because they serve as a photographic proof that something did happen in reality (Messaris, 1997).
- Visual images elicit emotion by simulating the appearance of a real person or object (Messaris, 1997).
- Images are easier to comprehend than text or the spoken word (Wileman, 1993).
- When designing messages, a combination of images and verbal information is recommended to enhance clarity (Oliver, 2002).
- The largest images in a display/document attract the most attention (Oliver, 2002).
- Images simulate certain aspects of emotional interaction by the means of variables that control the viewer's perspective, such as: angle of view, proximity of angle, presence or absence of subjective shots, etc. (Messaris, 1997).
- Images are a strong marketing tool, because they support the purchasing process by giving information including emotional information on which consumers base their decision (Dormann, 2002).
- Images can be manipulative only when they are based entirely on aesthetic and entertainment value and decoration (Zimmerman, 1999).

## Appendix C: Recommendations for an Effective Use of Layout

- Screen design should aim for balance, because balance evokes a feeling of stability (Harrell, 1999).
- Use white space, because it is critical to directing the user's attention to adjacent regions containing important information (Mullett, 1995).
- Important information should be presented in prominent locations on the computer screen, with related data grouped and separated; fixed locations should be used for certain data so that users develop a spatial sense of where the data is to be found (Stoney & Wild, 1998).
- The viewer must first perceive the entire design prior to observing the individual elements (Szabo & Kanuka, 1999).
- Create visual order, through the relative size and location of screen elements, to draw the users' attention to the most important features of the display (Head, 1999).
- The layout of a Web site should reflect the importance of its content. Important content should be easier to locate than less important content. Important ideas should be significantly larger and/or more noticeable than less important ideas (Parker, 1997).
- To prevent learner frustration, limit the quantity of information presented to a few items per screen. Generally, it is best to present one, two, or three (at the maximum) items on a given presentation screen (McFarland, 1995).
- Use of coordinated colors, fonts, headers, and typography, consistently applied throughout, can help create a unified graphical vocabulary that makes navigation and processing easier for users (Head, 1999).

## Appendix D: General Recommendations for an Effective Web Design

Because Web page design is a new area of the visual communication discipline, there are no empirical test reported in the literature about what makes an effective Web page, but there are a number of recommendations of the applied practice that help designers to create effective Web interfaces. The following points present these recommendations.

### Site Layout

The layout of a Web site should be determined by the tasks the target audience wants to perform. The most important section of a Web site is the top section; and therefore, it should include information to tell the users where they are, what they can do on this Web site, and how they can move between pages (Binstock, 1999; Nielsen, 2000).

- information should be split into logical sections (Parker, 1997);
- content should account for at least half, but preferably eighty percent, of every page, while navigation should take up to twenty percent (Nielsen, 2000).
- graphic elements (photos, subheads, pull quotes) as well as white space should be used to break up large areas of text (Mullett, 1995);
- pages should not be cluttered with too many graphical elements and too much text (Parker, 1997).

**Homepage**

The homepage is the first page that users see upon accessing a Web site. The function of the homepage is to inform the users where they are, and what the purpose of the site is. It also acts as a transition point to other pages of the Web site.

the homepage should be attractive and well laid out because it is the starting page (Fleming, 1998);

- the homepage and interior pages should always share the same design style, but the homepage should always be treated differently (Nielsen, 2000);
- the homepage should not have a 'Home' button (Nielsen, 2000);
- the homepage should display a larger logo of the company in the site's top-level navigation; a list of current news and events; and/or a search feature (Nielsen, 2000).

**Navigation**

Users can arrive at a Web site from anywhere else on the Web, so it is important to tell them where they have arrived. Also, they can arrive at any point in the site, not just the home page. It is important, therefore, to tell them where they are and how they can go back to the home page. The navigation system assists users with the ability move around on a Web site, and to answer three basic questions: where am I; where have I been; and where can I go (Nielsen, 2000).

- navigation should be minimized, because it is there only to assist the user to move around on a Web site; it should take less than twenty percent of the total screen real estate (Nielsen, 2000);
- navigation should show the user's current location as relative to the site's structure. (Nielsen, 2000);

- navigation should provide the user with a way to navigate back to a starting point or to the homepage (Goldberg, 1997);
- navigation buttons and bars should be easy to understand and use (Lynch & Horton, 1997).

**Links**

Links help people navigate within a Web site, and they can provide credibility by providing outside information (Spool, 1997). By default, Web browsers use two different colors to display links: blue to display links to pages that the user has not yet visited, and purple to display visited links (Nielsen, 2000).

- links should be clearly labeled (Jones & Farquhar, 1997), and links text should be meaningful when taken out of context; it is not very informative if all links are in the form 'click here for…' (Nielsen, 2000);
- links should be valid; error messages put people off (University of Essex Web Support Unit, 2003);
- each image-based link should be provide with an alternative text-based link (Spool, 1997; University of Essex Web Support Unit, 2003);
- links should always be marked in blue and underlined because this is a familiar way (for users) of displaying and remembering links (Nielsen, 1996);
- links should be marked using a contrasting color that matches the overall color palette of the Web site (Nielsen, 2004; Veen, 2001).

**Text**

Research has shown that reading from computer screens is, generally, twenty five percent slower than reading from paper, and that users tend not to read screen text fully. Instead, they scan text and pick out keywords, sentences, and paragraphs of interest (Nielsen, 1997).

- long blocks of text should be avoided, and text should be broken up with subheadings and bulleted lists (Nielsen, 1996);
- certain pages can display long text especially if they are meant to be printed for reference, handouts, reading lists or other materials (Nielsen, 1997; University of Essex Web Support Unit, 2003);
- meaningful headings that clearly inform users of what they are about to read should be displayed (Nielsen, 2000);
- font sizes that are big enough should be used and all caps should be avoided (Nielsen, 2000);
- all text should be grammatically correct and free of spelling errors (Lynch & Horton, 1997);
- all content should be up to date (Nielsen, 1996);
- moving, blinking and/or zooming text should be avoided because it is harder to read than static text (Nielsen, 1996).

**Color**

Color on the Web includes the color of the text, the links, the background, and the graphics (Boyle, 2001). Color must be selected carefully for each of these elements in order to establish a clear color scheme.

- a limited color palette should be used (Berryman, 1984; Porter, 1994; Preece, 2000);
- a high level of contrast between the text and the background should be used; the most legible combination is black text on a white background (positive text), or a white text on a black background (negative text) (Boyle, 2001);
- strongly patterned backgrounds should be avoided (Parker, 1997).

**Graphics**

Graphics (or imagery) include all information on the Web page aside from the text, such as icons, buttons, photos, and animations. Although big images and multimedia elements can be very effective on a Web site, they can also slow the download of the page (University of Essex Web Support Unit, 2003).

- graphics selection should be consistent; a few well chosen graphics can make a big difference, but a lot of badly chosen graphics can make a big difference, too (Spool, 1997);
- graphics should be relevant and used only to enhance, not decorate, the page (Nielsen, 2002; Spool, 1997);
- the use of animations should be avoided, or reduced, because they usually become irritating to users (Nielsen, 2000);
- graphics should be kept small to avoid delays in loading the pages (Nielsen, 1996);
- company name and logo should be displayed in the upper-left corner of the screen to be noticeable (Nielsen, 2000).

**Technical Considerations**

Web sites can be viewed in different browsers and at different connection speeds; fonts specified by the Web designer may not be available to all users; colors display differently on some computers, etc. If a Web page takes more than a few seconds to load, people start to use the 'Back' button (TLC Systems, 2002).

- all pages should be checked with browser windows set to different sizes, but make sure pages work in a browser window of 640 by 480 pixels (Krug, 2000);
- all pages should be designed to load quickly (Nielsen, 2000; Krug, 2000).

## Appendix E: Web Site A (Emotional) Screenshots

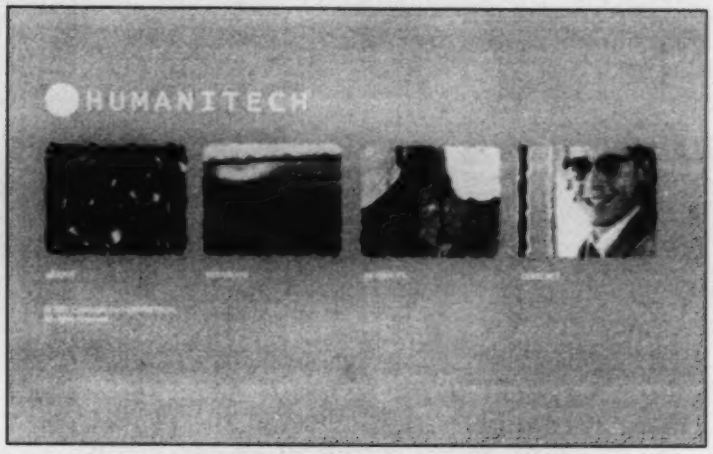



**Figure E.1 Web Site A – Home Page**

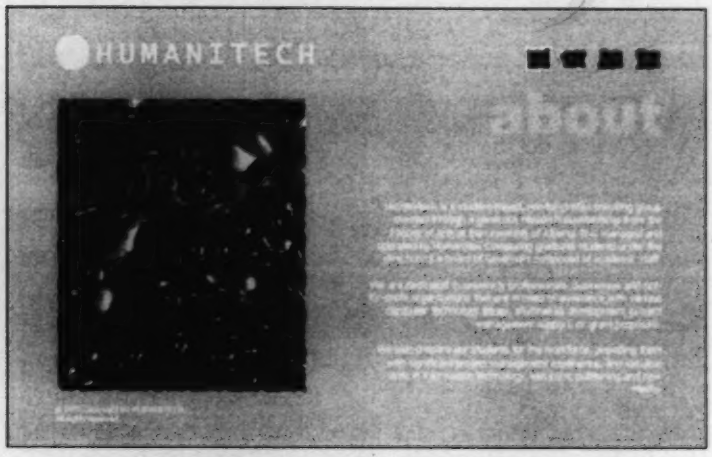



**Figure E.2 Web Site A – About Us Page**

**Figure E.3 Web Site A – Services Page**

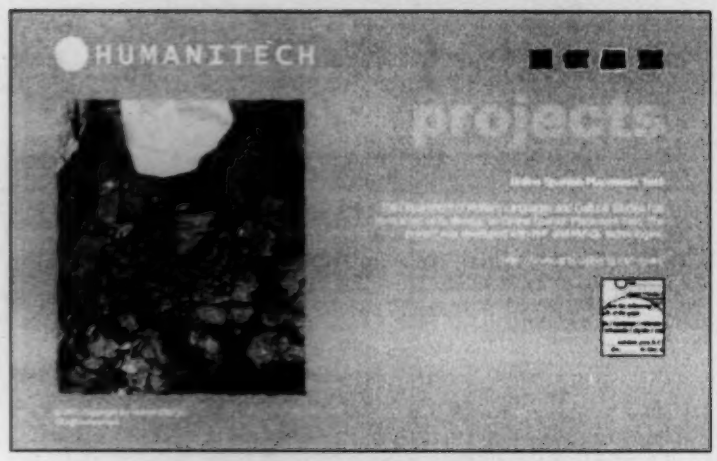



**Figure E.4 Web Site A – Projects Page**

**Figure E.5 Web Site A – Contact Page**

## Appendix F: Web Site B (Ethical) Screenshots

**Figure F.1 Web Site B – Home Page**

**Figure F.2 Web Site B – About Us Page**

**Figure F.3 Web Site B – Services Page**

## Appendix G: Web Site C (Logical) Screenshots

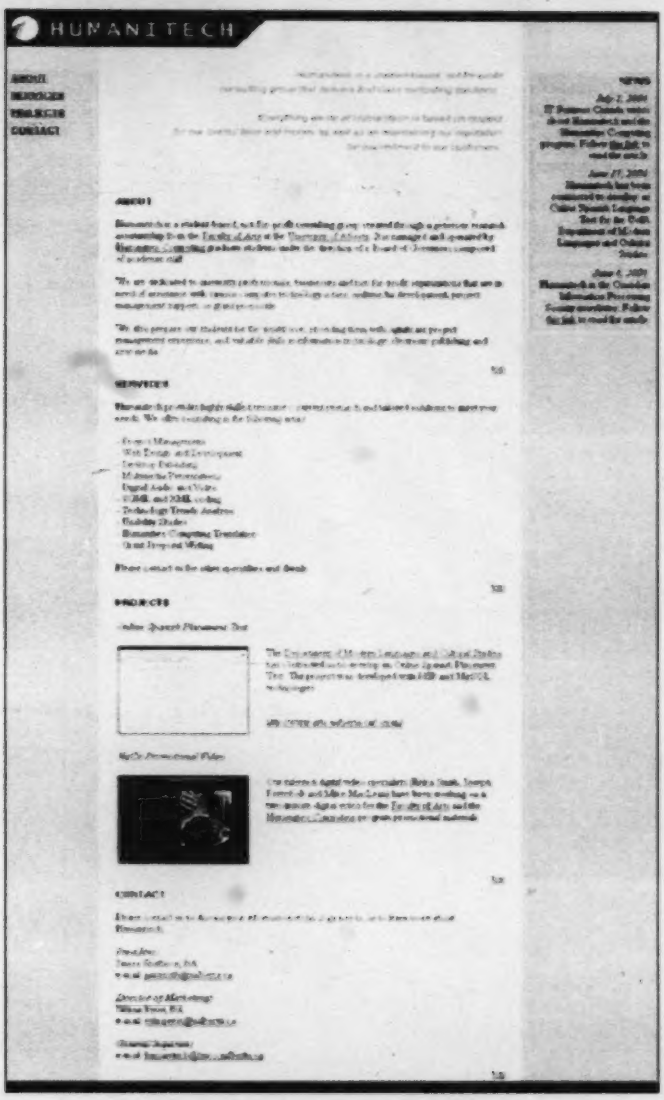
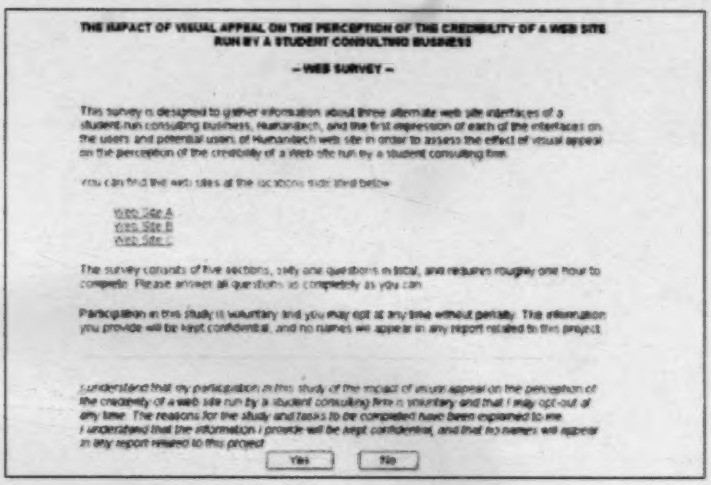



**Figure G.1 Web Site C – Home Page**

# Appendix H: Survey Web Site Screenshots



THE IMPACT OF VISUAL APPEAL ON THE PERCEPTION OF THE CREDIBILITY OF A WEB SITE RUN BY A STUDENT CONSULTING BUSINESS

-- WEB SURVEY --

This survey is designed to gather information about three alternate web site interfaces of a student-run consulting business, Humandtech, and the first impression of each of the interfaces on the users and potential users of Humandtech web site in order to assess the effect of visual appeal on the perception of the credibility of a Web site run by a student consulting firm.

You can find the web sites at the locations indicated below:

Web Site A
Web Site B
Web Site C

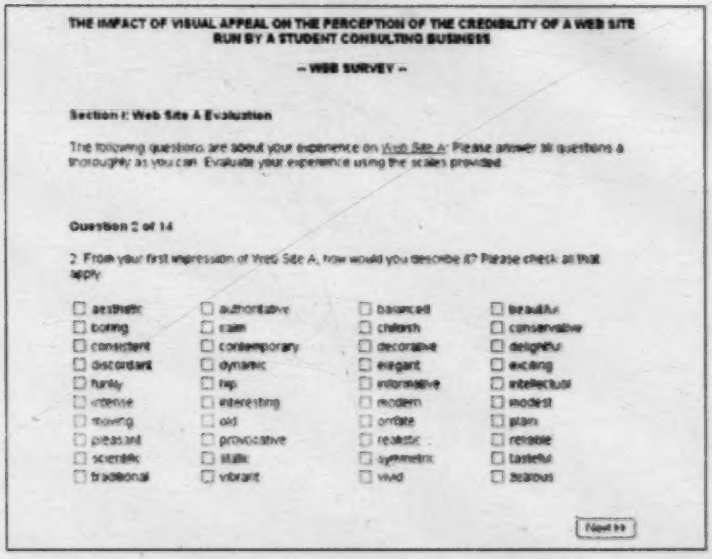
The survey consists of five sections, sixty one questions in total, and requires roughly one hour to complete. Please answer all questions as completely as you can.

Participation in this study is voluntary and you may opt at any time without penalty. The information you provide will be kept confidential, and no names will appear in any report related to this project.

*I understand that my participation in this study of the impact of visual appeal on the perception of the credibility of a web site run by a student consulting firm is voluntary and that I may opt-out at any time. The reasons for the study and tasks to be completed have been explained to me. I understand that the information I provide will be kept confidential, and that no names will appear in any report related to this project.*

Yes | No

**Figure H.1 Web Survey – Home Page**



THE IMPACT OF VISUAL APPEAL ON THE PERCEPTION OF THE CREDIBILITY OF A WEB SITE RUN BY A STUDENT CONSULTING BUSINESS

-- WEB SURVEY --

**Section I: Web Site A Evaluation**

The following questions are about your experience on Web Site A. Please answer all questions a thoroughly as you can. Evaluate your experience using the scales provided.

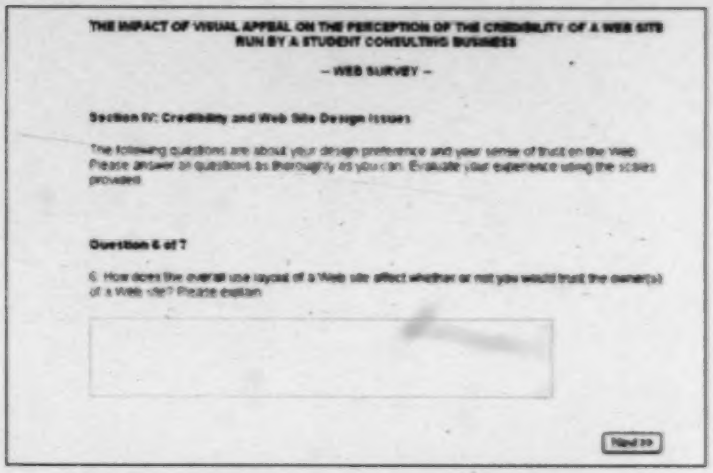
**Question 2 of 14**

2. From your first impression of Web Site A, how would you describe it? Please check all that apply.

| | | | |
|---|---|---|---|
| ☐ aesthetic | ☐ authoritative | ☐ balanced | ☐ beautiful |
| ☐ boring | ☐ calm | ☐ cluttish | ☐ conservative |
| ☐ consistent | ☐ contemporary | ☐ decorative | ☐ delightful |
| ☐ discordant | ☐ dynamic | ☐ elegant | ☐ exciting |
| ☐ funky | ☐ hip | ☐ informative | ☐ intellectual |
| ☐ intense | ☐ interesting | ☐ modern | ☐ modest |
| ☐ moving | ☐ old | ☐ ornate | ☐ plain |
| ☐ pleasant | ☐ provocative | ☐ realistic | ☐ reliable |
| ☐ scientific | ☐ stuffy | ☐ symmetric | ☐ tasteful |
| ☐ traditional | ☐ vibrant | ☐ vivid | ☐ zealous |

Next >>

**Figure H.2 Web Survey – Sample Question Page**


THE IMPACT OF VISUAL APPEAL ON THE PERCEPTION OF THE CREDIBILITY OF A WEB SITE RUN BY A STUDENT CONSULTING BUSINESS

-- WEB SURVEY --

Section IV: Credibility and Web Site Design Issues

The following questions are about your design preference and your sense of trust on the Web. Please answer all questions as thoroughly as you can. Evaluate your experience using the scales provided.

Question 6 of 7

6. How does the overall use layout of a Web site affect whether or not you would trust the owner(s) of a Web site? Please explain.

Next >>

**Figure H.3 Web Survey – Sample Question Page**

THE IMPACT OF VISUAL APPEAL ON THE PERCEPTION OF THE CREDIBILITY OF A WEB SITE RUN BY A STUDENT CONSULTING BUSINESS

-- WEB SURVEY --

Section IV: Credibility and Web Site Design Issues

The following questions are about your design preference and your sense of trust on the Web. Please answer all questions as thoroughly as you can. Evaluate your experience using the scales provided.

Question 7 of 7

7. How important are the following to the credibility of Web sites?

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| images | ○ | ○ | ○ | ○ | ○ |
| colour | ○ | ○ | ○ | ○ | ○ |
| layout | ○ | ○ | ○ | ○ | ○ |
| readability | ○ | ○ | ○ | ○ | ○ |
| navigation | ○ | ○ | ○ | ○ | ○ |
| written content | ○ | ○ | ○ | ○ | ○ |
| interactivity | ○ | ○ | ○ | ○ | ○ |

Please proceed to Section 5

**Figure H.4 Web Survey – Sample Question Page**

## Appendix I: Web Survey Questions

**Section I-III: Web Site A/B/C Evaluation**

The following questions are about your experience on Web Site (A/B/C). Please answer all questions a thoroughly as you can. Evaluate your experience using the scales provided.

1. What is the tone of this Web site?

2. From your first impression of Web Site (A/B/C), how would you describe it? Please check all that apply.

| | | | |
|---|---|---|---|
| aesthetic | authoritative | balanced | beautiful |
| boring | calm | childish | conservative |
| consistent | contemporary | decorative | delightful |
| discordant | dynamic | elegant | exciting |
| funky | hip | informative | intellectual |
| intense | interesting | modern | modest |
| moving | old | ornate | plain |
| pleasant | provocative | realistic | reliable |
| scientific | static | symmetric | tasteful |
| traditional | vibrant | vivid | zealous |

3. Please rate the effectiveness of Web Site (A/B/C) overall visual content. (1=Very Ineffective; 2=Somewhat Ineffective; 3=Neutral; 4=Somewhat Effective; 5=Very Effective)

4. Does Web Site (A/B/C) appear to be designed professionally? Why or why not?

5. What would you suggest to change in the overall look and feel of Web Site (AB/C)? Why?

6. I was able to find easily the following information about the organization: (1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree)

   mailing address
   phone number

e-mail address
services offered
samples of work

7. Please rate the effectiveness of Web Site (A/B/C) overall navigation.
   (1=Very Ineffective; 2=Somewhat Ineffective; 3=Neutral; 4=Somewhat Effective; 5=Very Effective)

8. Web Site (A/B/C) has clear information about its sponsoring business and services provided.
   (1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree)

9. Web Site (A/B/C) links to outside materials and resources I think are believable.
   (1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree)

10. Web Site (A/B/C) displays information about the credentials of individuals providing the information or service.
    (1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree)

11. Please rate the effectiveness of Web Site (A/B/C) overall content.
    (1=Very Ineffective; 2=Somewhat Ineffective; 3=Neutral; 4=Somewhat Effective; 5=Very Effective)

12. What do you consider to be the most valuable aspect of Web Site (A/B/C)? Why?

13. What do you consider to be the least valuable aspect of Web Site (A/B/C)? Why?

14. Does this web site appear credible? Please explain.

**Section IV: Credibility and Web Site Design Issues**

The following questions are about your design preference and your sense of trust on the Web. Please answer all questions as thoroughly as you can. Evaluate your experience using the scales provided.

1. What makes you trust the information you find on the Web? Please explain.

2. When first approaching a business through a Web site, what personal information do you generally like to know its staff? Please explain.

3. Does the overall look and feel of a Web site play a decisive role in you trusting the owners of the Web site? Please explain.

4. How does the overall use of color on a Web site affect whether or not you would trust the owner(s) of a Web site? Please explain.

5. How does the overall use of images on a Web site affect whether or not you would trust the owner(s) of a Web site? Please explain.

6. How does the overall use layout of a Web site affect whether or not you would trust the owner(s) of a Web site? Please explain.

7. How important are the following to the credibility of Web sites?
(1=Not Important At All; 2=Somewhat Not Important; 3=Neutral; 4=Somewhat Important; 5=Very Important)

   images
   color
   layout
   readability
   navigation
   written content
   interactivity

**Section V: User Profile**

The following questions will collect demographic data to determine the profile of the participants. All information provided is strictly anonymous.

1. Please indicate your age.

   18-25
   26-35
   36-45
   46-55
   over 55

2. Please indicate your gender.

   female
   male

3. Please indicate your highest completed level of education.

   secondary
   college
   undergraduate degree
   graduate

4. How long have you been using computers and the Web?

   less than 1 year
   1-3 years
   4-5 years
   5-7 years
   more than 7

5. What monitor resolution do you work with?

   smaller than 600 x 800
   600 x 800
   1024 x 746
   larger than 1024 x 746
   don't know

6. What is the average time per week you spend on the Web?

   less than 5 hrs
   5-10 hrs
   10-20 hrs
   20-40 hrs
   more than 40 hrs

7. What is your main purpose of using the Web? Please check all that apply.

   general information search
   entertainment
   job related usage
   school related usage
   other, please explain

8. What type of Internet browser do you use most often?

   Internet Explorer
   Netscape
   other
   don't know

9. Have you ever built a Web site?

   yes
   no

10. Do you have your own personal Web site?

    yes
    no

11. What would be your role in a student-run company, such as Humanitech?

    client
    staff member

12. Do you have any final thoughts or comments?

## 1. STATEMENT OF RESEARCH PROBLEM AND METHODS

The Web site of a business is an important means of interacting and communicating with customers (Fleming, 1998). Promoting a credible impression on the Web helps in building the overall credibility of any business, because people tend to make quick decisions about the choice of businesses based on their Web presence (Lif, 1998). B.J. Fogg and Shawn Tseng (1999) define credibility as believability and confirm that it is critical to establishing trustworthy impressions. It is especially important for student-run businesses, because they find themselves in a competition with known and established businesses (Cheskin, 2002).

Often, the overall visual appeal of a Web site alone is considered a key factor in determining what customers might think about a business (Fogg, 2002; Perfetti, 2003). Therefore, the credibility of Web sites should be particularly critical for student-run businesses that offer Web and multimedia design services.

Research on the credibility of Web sites is still in its infancy. Until the late 1990s, there was no large-scale research related to assessing the credibility of Web sites (Fogg, 2003). Beginning in 1999, B.J. Fogg and the Stanford Persuasive Technology Lab initiated a number of large-scale tests on the credibility of Web sites, in which hundreds of Web sites were studied, including entertainment, shopping, information and corporate Web sites. The results of Fogg's research suggest that the visual appeal of Web sites is clearly the most prominent feature affecting people's perception of the credibility of Web sites.

The purpose of this study is to explore the effect of visual appeal on the perception of the credibility of a Web site run by a student consulting business, such as

Humanitech, as well as to provide a new method of studying the effectiveness of Web sites.

Humanitech is a student-run, non profit consulting group based out of the Master of Arts in Humanities Computing program, at the University of Alberta. It is managed and operated by graduate students, and provides such services as: Web site design, multimedia development, project management, electronic publishing and technical translation.

One way of looking at the visual appeal is through rhetoric (Ehses & Lupton, 1988). Therefore, three visual modes of appeal (rational, ethical and emotional) adapted from classical rhetoric will guide the participants' evaluation of the impact of visual appeal on the credibility of the three alternate Web interfaces based on a Web site run by a student consulting business, Humanitech. The visual design features I will use in my study are: imagery, color and layout. Research data will be collected through a Web-based survey. Upon the completion of this project, the results will be analyzed and discussed in the Master of Arts, Humanities Computing thesis.

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**2. WHO ARE THE PARTICIPANTS AND HOW THEY WILL BE INVOLVED IN YOUR RESEARCH?**

The participants are divided into two categories:

1. Pilot group (approximately 3-5 individuals). The purpose of the pilot group is to assess the suitability of methodology to be used in the actual testing sessions. The pilot group is a part of an iterative process (where the questions are tested and modified and re-tested before being presented to the actual test participants) that I decided to use as one of my research tools.
2. Test group (approximately 15-20 individuals), consisting of prospective clients and students involved in the management of a student-run consulting business, such as Humanitech.

I have chosen these two groups on the basis that they are members of a group that is likely:

- to use the Web frequently;

- to be involved in the development and management of a student-run consulting business;
- to participate in a Web site development process;
- to become customers of a student-run consulting business.

The participants will be invited to a classroom in a group or individually (depending on their time and availability), where they will be provided with links to the Web interfaces to be tested, and will be asked to visit all of them in order to complete a Web site evaluation using a Web-based survey. The participants in this study require roughly one hour to complete. In addition, the pilot group participants will be asked to answer a few additional questions in order to evaluate the suitability of the methodology I have chosen. I will be present in the classroom at all times. It is important to note that the sample survey questions included in this proposal might be adapted after completing the pilot group testing.

**3. PROCEDURES TO BE UNDERTAKEN TO REDUCE RISK TO HUMAN SUBJECTS:**

An opening statement will be read at the start of each group session, outlining the purpose of the research, the voluntary nature of participation, the right to opt-out at any time, and the confidentiality of the information given (see the attached opening statement). The opening statement will also be posted on the survey Web site. The participants will provide consent in writing (see the attached consent form).

I have read the University of Alberta Standards for the Protection of Human Research Participants [GFC Policy Manual, Section 66] and agree to abide by these standards in conducting my research.

**OPENING STATEMENT**

Thank you for participating in this study. My name is Wioletta Polanski, and I am a graduate student in the Master of Arts in Humanities Computing program, with co-supervision from the Department of Art and Design, at the University of Alberta.

Purpose of the Research

This research project is intended to obtain information on the effect of visual appeal on the perception of the credibility of a Web site run by a student consulting firm such as Humanitech.

Benefits Envisaged

The research data gathered from the survey will then be used in a Master's thesis, in which I will explore the effect of visual appeal on the perception of the credibility of a Web site run by a student consulting firm, and I will also make recommendations on how to design such a Web site for the highest level of credibility.

Tasks to be Performed

Web site browsing and a Web-based survey are the two components in the applied part of this study. Web site browsing requires each participant to visit three alternate Web site interfaces and spend some time becoming familiar with the content and the overall look and feel of the Web sites. The Web-based survey requires each participant to answer a set of questions relating to the various components of the Web site interfaces visited, the Web credibility issues, as well as the participant's computer usage experience and Web interface preference.

Rights of the Subject

Participation in this study is voluntary and you may opt at any time without penalty. The only individuals who will have access to the information you provide will be my thesis supervisors (Bonnie Sadler Takach and Sean Gouglas), the Web survey and database programmer (Cam Fraser), and I. The information you provide will be kept confidential, and no names will appear in any report related to this project.

Inconveniences or Risks Involved

Participation in this study requires roughly one hour to complete. No more risk than that which would be encountered in a normal use of the Web is expected.

Consent Form

At this point I would like you to review these consent forms, which repeat in writing the information I have just given out verbally, and ask you to please sign one of those and return it to me in order to indicate your consent to participate in this study.

**PARTICIPANT CONSENT FORM**

Purpose of the Research

This research project is intended to obtain information on the effect of visual appeal on the perception of the credibility of a Web site run by a student consulting firm such as Humanitech.

Benefits Envisaged

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Participation in this study requires roughly one hour to complete. No more risk than that which would be encountered in a normal use of the Web is expected.

Principal Investigator

Wioletta Polanski, the Master of Arts in Humanities Computing candidate, the Department of Art and Design, University of Alberta.

I, _____
understand that my participation in this study of the impact of visual appeal on the perception of the credibility of a Web site run by a student consulting firm is voluntary and that I may opt-out at any time. The reasons for the study and tasks to be completed have been explained to me. I understand that the information I provide will be kept confidential, and that no names will appear in any report related to this project.

_____
Signature of the Participant

_____
Date